

# AMERICAN FORESTRY

THE MAGAZINE OF THE AMERICAN FORESTRY ASSOCIATION

WASHINGTON, D. C.

PERCIVAL SHELDON RIDSDALE, Editor

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## CHANGE OF ADDRESS

A request for change of address must reach us at least thirty days before the date of the issue with which it is to take effect.  
Be sure to give your old address as well as the new one.

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## PROPOSED CHANGE IN THE BY-LAWS

In view of the fact that the by-laws of the American Forestry Association, as amended last February provide for seven permanent directors for the purpose of assuring proper control and direction of the Association's endowment funds and other property, and that this is believed by some members of the Association as not being the most democratic and serviceable form of management, the action outlined in the following report has been taken by the Board of Directors:—

On Thursday, August 25th, Col. W. B. Greeley, Col. H. S. Graves, Mr. F. W. Besley, Dr. H. S. Drinker, Mr. Chester W. Lyman, and Mr. Nelson C. Brown met by appointment at the University Club, in Washington, as tions recently agitated and discussed in regard to the By-laws of the American Forestry Association. After a full discussion of the whole situation, they reached the following conclusions, which were laid before the Directors of the Association at a meeting held Tuesday, August 30th:

"(1) The provision for 7 permanent Directors was agreed to be eliminated. As to this, Col. Greeley suggested that a system somewhat similar to that which formerly prevailed in the Association could be adopted, leaving the choice and election of all the Directors wholly in the hands of the members of the Association. He suggested the substitution of an elective Board of 15 members, 3 to be elected annually by ballot by the members of the Association, to hold office for 5 years. The Committee unanimously approved this suggestion.

"It was further suggested that in place of the appointment of a number of permanent Directors, a plan of having a Committee of three permanent Trustees to hold the Association's endowment funds and life membership payments be considered by the Board.

### COL. HENRY S. GRAVES' LETTER TO FORESTERS

Col. Henry S. Graves whose petition to the Board of Directors of the American Forestry Association in regard to the changes in the by-laws of the Association referred to above was signed by a number of foresters, has sent the following letter to these foresters:

"At a recent meeting of the Directors of the American Forestry Association, a resolution was passed requesting Col. Greeley to name a committee of three foresters to confer with a committee of the Directors, with reference to the matters contained in the petition which was signed by you in the Spring.

"Col. Greeley, Mr. Besley, and I, acting in the informal capacity of advisers, met with Dr. Drinker, Mr. Lyman and Mr. Brown on August 25th. The representatives of the Directors received our suggestions regarding the by-laws very cordially and were glad to join in specific recommendations to the Board in regard to them. They were also as one with us in the suggestions about the aims of the Association and the means to forward the

"(2) All non-salaried officers (at present, the President, Vice-Presidents, and Treasurer) to be elected annually by letter ballot by the members of the Association instead of by the Directors. Nominations for Directors and for the non-salaried officers to be made annually by a nominating Committee of representative character appointed by the Directors, any group or groups of 25 members also to have the right to nominate tickets, to be sent out to the members by the Secretary with the ticket suggested by the nominating Committee.

"(3) The power of the Directors to amend the By-Laws to be eliminated. All amendments to be made by the members of the Association.

"(4) The plan of the Directors that has been under consideration, to appoint a competent, trained and experienced Forester as a member of the working and editorial staff, under the direction of the Directors, to assist in taking the leadership in promoting forestry in the nation, —was heartily endorsed and strongly recommended.

"It is the policy of the Directors to employ a Forester for this purpose as a permanent feature of the work of the Association as soon as that can be brought about, and to place him in a responsible relationship toward the editorial policy of the magazine on forestry matters."

(Signed) W. B. GREELEY,  
H. S. GRAVES,  
F. W. BESLEY,  
H. S. DRINKER,  
CHESTER W. LYMAN,  
NELSON C. BROWN,

The Board of Directors of the American Forestry Association at their meeting held August 30, 1921, unanimously approved the above recommendations.

interests of forestry through the Association, especially in the appointment of a forester who would be responsible for the editorial policy of the magazine in forestry matters and for handling other forest activities of the Association.

"The recommendations of the committee are contained in the enclosed statement. These have already been approved by the Board which will take appropriate steps looking to their adoption at the annual meeting, or sooner, if practicable.

"The points raised in the petition submitted by us on May 20th, have now been met by the Directors. This action of the Board should receive the appreciation of those who have objected to the changes in the by-laws, and I hope that they will stand ready, as I shall do, to assist in carrying out the new plans and otherwise forwarding the interests of the Association."

Very sincerely yours,  
HENRY S. GRAVES.

# AMERICAN FORESTRY

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NO. 334

## FIGURE IN WOOD

BY SAMUEL J. RECORD

PROFESSOR OF FOREST PRODUCTS, YALE UNIVERSITY

WOOD is one of the most variable materials in the world. In density it ranges from a pith-like substance used for pith-helmets and life preservers to lignum-vitae and ironwood which, even when perfectly dry, are a third again heavier than water.

In color there is the chalky white of holly at one extreme and the jet black of ebony at the other. There are to be found almost every possible shade and combination of red, orange, yellow, green, blue and violet. With the woods of the world at one's disposal it would be a simple enough task to arrange the hues into a perfect rainbow.

In figure there is an equally wide range from the plain and drab to the highly ornate and fantastic. The cabinet maker, the furniture manufacturer and the architect have a choice of material with which to satisfy every task and whim of the trade. With judicious use of stains and bleaches, fillers and varnish the decorative effects with wood are unlimited. Figure in wood

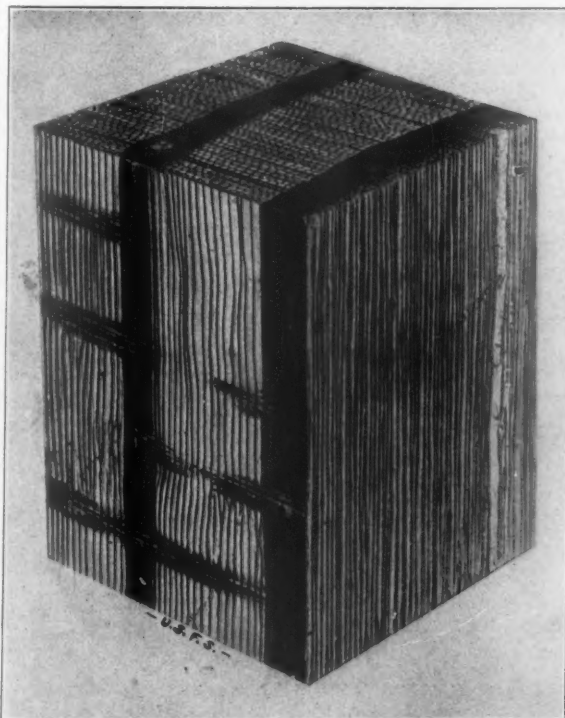
has various sources. These may be grouped in those due to structure, those caused by color variation or pigmentation, and to combination of the two. These again may be classified as normal and abnormal or pathologic.

By normal is meant the natural condition of the wood of a sound tree. In the abnormal or pathologic are to be found the peculiar distortions and colorations resulting from disease, the attacks of insects and the activities of various agencies not a part of the regular life processes of the trees.

First among the normal comes the figure resulting from the layers of growth which reflect the seasonal variations. While all trees of the Temperate Region and many of those from the Tropics have growth rings, in not all cases, by any means, are the contrasts in density and color great enough to show prominently in the finished material. Common examples are basswood, aspen, paper birch, tulip wood, holly, tupelo, buckeye, yellow cedars, and certain of the pines, firs and spruces.

On the other hand, there are certain conifers and hardwoods with a distinct layered or banded structure. In such cases the wood envelope laid on in early spring is softer, of looser texture and normally lighter colored

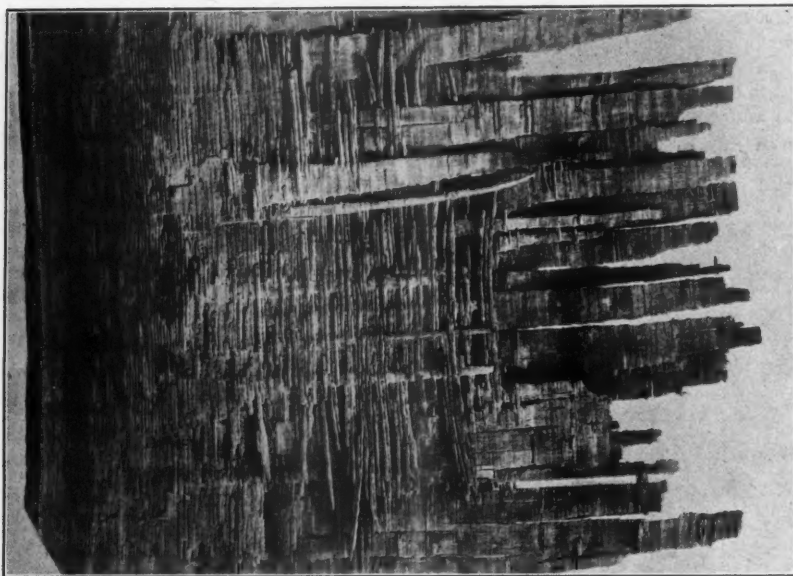
than that produced later in the growing season. If a log were a perfect cylinder and the layers regular throughout, the ends would show a series of concentric circles, alternating light and



A BLOCK OF PINE MAGNIFIED TO SHOW LAYER GROWTH

Showing alternating light and dark bands which produce the figure in finished lumber. The face to the left is radially cut or "quarter-sawn"; that to the right, tangentially cut or "flat-sawn".

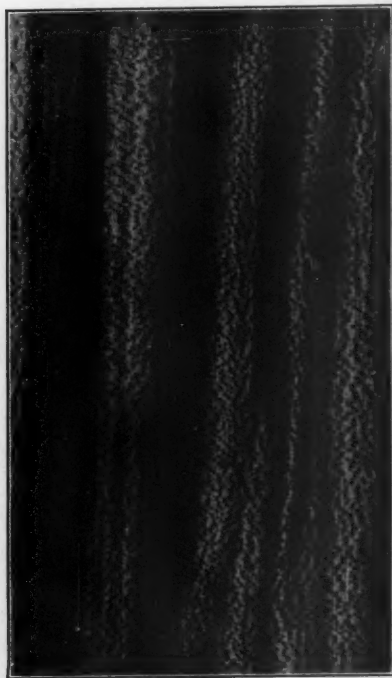




A PIECE OF QUARTERED WHITE OAK BOARD

Most of the fiber is rotted away, leaving the thin ribbons, known as medullary rays.

dark, while a split surface would be marked with parallel stripes. If the split ran straight through the middle these parallel stripes would be of uniform width; if the split were tangential or slabbed off at right angles to a radius,



ROE OR RIBBON GRAIN IN SYCAMORE

The striping is due to differences in direction of fiber layers, the finer markings to the rays.



UNUSUAL MOTTLE IN POPLAR

Yellow poplar board showing peculiar mottle resulting from disturbance of the cambium layer by woodpeckers.



EFFECT OF A BRANCH ON THE GRAIN OF PINE

It is from the crotches of mahogany trees that some of the finest figured material is obtained.

trade has given the names quarter-sawn, that radially cut, and flat-

sawn, that is, tangentially cut. The name, quarter-sawing, comes from the mill practice of dividing large logs into quarters and then cutting boards

there would be a wide band in the middle with narrowing stripes at either side.

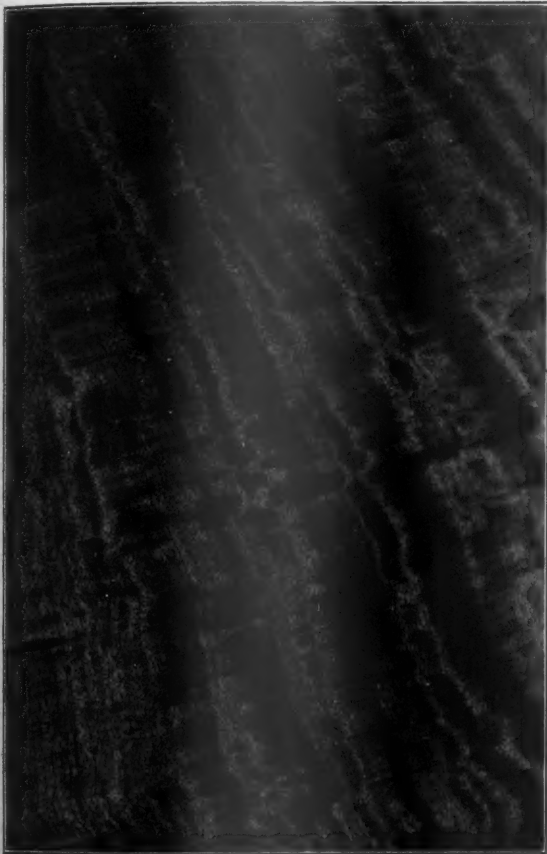
But logs are not perfectly round; they are more or less flattened and tapered; the growth rings are not perfectly regular, but vary in thickness and may be undulating or decidedly wavy, while branches and small limbs cause local deformations. In consequence, when a board is sawed these various irregularities show up in the grain. Boards cut tangentially or flat sawn will have the most conspicuous figure, while those from the middle, or radially sawn, may show nothing but light and narrow stripes, the edges of the seasonal growths.

To these two general methods of cutting a board from a log, the



from these so as to get the faces radial or nearly so. Unless the boards are V-shaped or tapering, as in the case of clapboards, it is obvious that only a few will face in a true radial plane.

In the case of the hard pines and Douglas fir, quarter-sawn or edge-grain lumber is preferred for flooring because it will wear uniformly and not sliver, but for interior finish, door panels and similar uses where figure is wanted, the flat-sawn or slash grain, as it is often called, is preferred. Douglas fir usually produces a more strik-



A WONDERFULLY BEAUTIFUL BIT OF FIGURE

Panel from one piece of finely figured mahogany which seems fairly alive under changing light.

ing figure than the yellow pines because the outline of the growth rings is usually wavy.

Among the hardwoods, the so-called ring-porous kinds, produce figure when flat-sawn. Among these may mentioned the oaks, ash and chestnut which are so extensively employed for interior trim, doors and furniture. It will be noted that, whereas the pines and other coniferous woods show light-colored spring wood and dark late wood, in the hardwoods just mentioned this condition is just reversed. Here the open porous layer of the spring wood absorbs the light while the denser band of summer wood reflects it. In tangentially sawn material the elongated ovals and irregular parabolas of the lighter areas have a fringe of vessel (or pore) lines long or

short, depending on the angle at which they were cut through.

In some woods, notably the oaks, another kind of figure is produced by quarter-sawing. In practically all woods there are ribbons of tissue which run at right angles to the axis of the tree like spokes in a wheel. These are the rays, often called medullary or pith rays because some of them appear as extensions of the pith into the wood. In all the conifers and most hardwoods these rays are too fine to show distinctly. In others, as in maple, cherry and mahogany, they are distinct but not conspicuous, and in some they are the most prominent feature when exposed. As examples of the latter may be mentioned, in addition to the oaks, the sycamore and beech, the Australian silky oak (which is not an oak at all) and others of its family (*Proteaceae*), such as the carvalho and pao concha of Brazil.

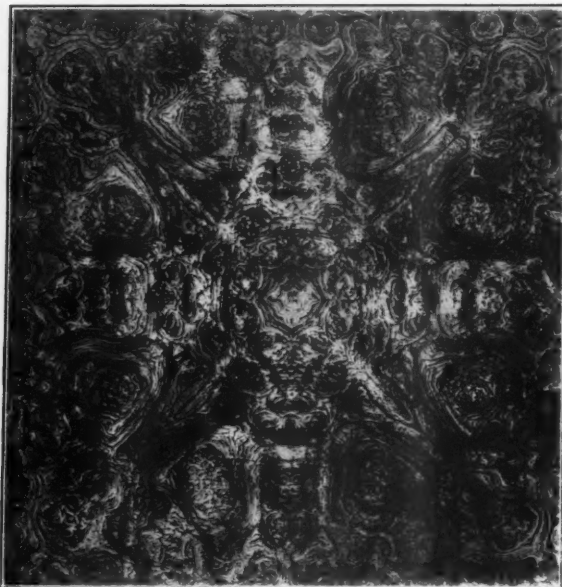
When oak is cut tangentially the lumber is commonly said to be plain-sawn in distinction to quarter-sawn which brings out the conspicuous figure. In ash, chestnut and the conifers, whose rays are scarcely visible, the term plain-sawing, as used in connection with oak, is not appropriate.

The exposed rays in quartered oak are often called "mirrors" because of their glassy appearance in proper



THIS IS A GOOD EXAMPLE OF WRINKLE MOTTLE

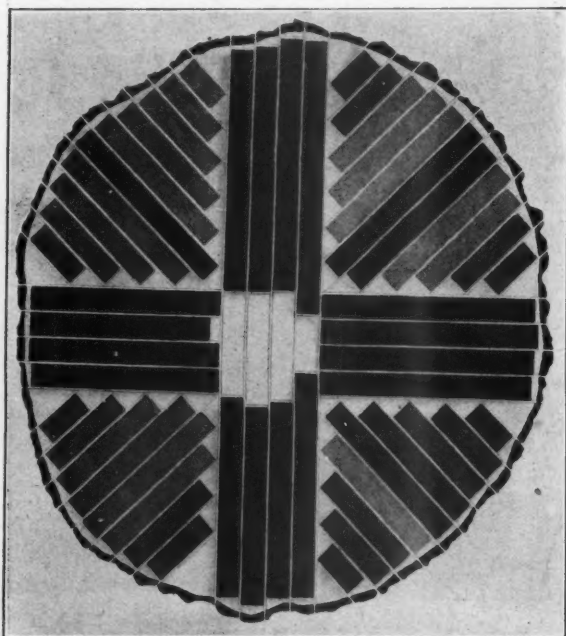
When the figure appears on the smooth surface as though in relief it is called "mottle."



A WEIRD AND FANTASTIC EFFECT

Large table top made from eight pieces of Persian walnut veneer cut from a burl. It requires little imagination to see in this innumerable faces and grotesque objects.

light. The term "silver grain" is also applied to the figure produced by the rays. Examination of an oak desk, filing cabinet or piano, will disclose a wide variation in the appearance of the rays, depending largely on the plane at which they are exposed by the saw. Thus they may be wide or narrow, long or short, straight or curved.



METHOD OF QUARTER SAWING

Showing clearly the means employed to cut through the log radially, or in lines radiating from the center, to get the grain effect so popular and familiarly called "quarter-sawn".

These various figures are sometimes given names by the trade, such as "splash figure," "pencil stripe," "herringbone," etc.

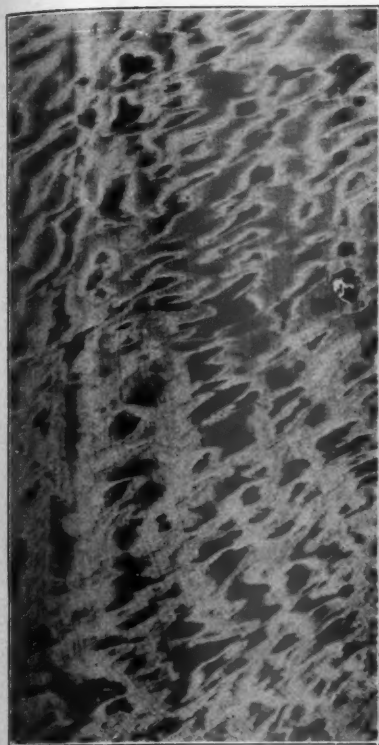
There is another kind of figure which may be brought out prominently in certain kinds of woods, mostly those of tropical origin. This is variously known as roe, ribbon grain, feather grain, etc., and appears as narrow to broad longitudinal stripes, alternating light and dark. This is due, not to actual differences in color, but to the way in which the light is reflected by the different layers. In woods such as these the grain is not straight nor does it run in a single direction; instead it is in alternating spirals. Thus if a specimen is split into a series of tan-



THE WAVY GRAIN VALUED BY CABINET-MAKERS

A panel of curly longleaf pine showing "Landscape Grain", so called because of its resemblance to a contour map.

gential planes at various depths it will be noted that the grain at one depth is growing in a left-hand spiral around the trunk, at another depth is growing in a right-hand spiral, while between the two it becomes straight. In the case of *lignum-vitae* the writer found that these spirals do not extend around the tree, but weave back and forth giving a lazy-S appearance on the exposed surface of a log. When these layers are cut through radially part of the fibers slant in one direction, part in another and the variation in amount of light reflected and absorbed causes the light and dark appearance, just as the luster



A SATIN-WOOD PANEL

This wood has a rare luster which makes the name satinwood very appropriate.

of pile fabric is changed by the direction in which the nap is smoothed. If one takes a panel of ribbon-grained wood and rotates it slowly in the light he will see the shifting of the light and dark ribbons. This is well illustrated in mahogany and our native sycamore.

Wavy grain is very common in some woods and likely to occur in any species. Here the fibers weave back and forth in a single plane. If the pattern is small it is usually called curly grain, though though this term is also applied to various irregularities of growth. In the crotch of a forked tree, at the junction of limbs and at the flare of the root the fibers are folded and wrinkled and local deposits of pigment are common. This results in highly figured material which in the cabinet woods is in demand by the trade. Most of the figured walnut comes from the stumps, though not all of the stumps by any means are suitable for this purpose. Some of the finest figured mahogany is from the forks of the tree and the figure varies with the angle of the crotch, the tightest grown producing mahogany "curls," some of which resemble the spray of a fountain or a cluster of plumes.

When any figure appears on a smooth surface, as though in relief, it is called mottle. There are innumerable kinds of mottle, some of which

have been named. The fiddle-back mottle appears a series of hills and valleys and derives its name from the common use of maple with such figure in making the backs of violins. The figure results from the proper cutting of wavy grained material and the effect from different lighting is the same as described in roe or ribbon grain.

And then there are plum mottle, wrinkle mottle, landscape mottle or grain and bird's-eye. The last is found in many woods, but is most common in hard maple. The cause of bird's-eye has never been satisfactorily explained. In some instances it may be due to small buds, in others to the action of woodpeckers, but in all of the ordinary cases examined by the writer there is no evidence of these factors. The surface of the log is pitted and spines on the inner bark project into these pits. Where buds have been noted the projections are outward. In pine, elm, Douglas

fir and especially in Sitka spruce it is common to find the surface of logs irregularly grooved with so-called "bear scratches," with ridges of inner bark fitting into them. The cause is unknown. The finished wood shows peculiar worm-like tracings due to the distortion of the fiber. Many instances of this were found in airplane spruce and was erroneously ascribed by some inspectors to the action of mistletoe. In lodgepole pine a pe-



BALD CYPRESS

Most of the figure is due to color variations.



FIGURED BLACK WALNUT PANEL  
Always distinctive and beautifully rich in color.



cular dimpling is produced by the action of rosin blisters in the bark which press into the cambium and cause the new wood to be molded around them.

One of the greatest sources of ornate wood is to be found in burls which are malformations of tree growth produced by insect attack or other pathologic condition. The most valuable burls are found at the roots. In walnut they often weigh from 500 pounds to a ton. They are so likely to be defective that it is a gamble as to how they will open up in sawing. There are thousands of little buds with little circlets of wood about them and irregular pigment deposits which work up into fantastic designs with little or no resemblance to normal wood. The bowls of briar pipes are made from the burls of va-

handles, is due to irregular pigmentation. Many of the woods of the ebony family, to which our common persimmon belongs, are highly figured. The marble wood is black and white, the Macassar ebony is black and reddish brown the camagon of the Philippines is a mingling of various light and dark shades. The yaya of Columbia is a nearly white wood with piping of dark green, a rather unusual color in wood. The snake wood or letter wood of the American Tropics, a member of the mulberry family, has peculiar black streaks which, instead of running up and down the tree, radiate like the spokes of a wheel and produce a pattern suggesting snakeskin. This wood is principally in demand for canes and small turned articles, as it is extremely dense and the core of heartwood, which



THREE PANELS FROM THE SAME VENEERS

The first is a panel made by matching four pieces of veneer sawed from an ash burl. The other two show other designs which might have been made from a different arrangement of the same pieces of veneer.

rious shrubs belonging to the heath family—the American “briar” coming from the mountain laurel. The California redwood supplies burls which are made into all sorts of novelties and souvenirs.

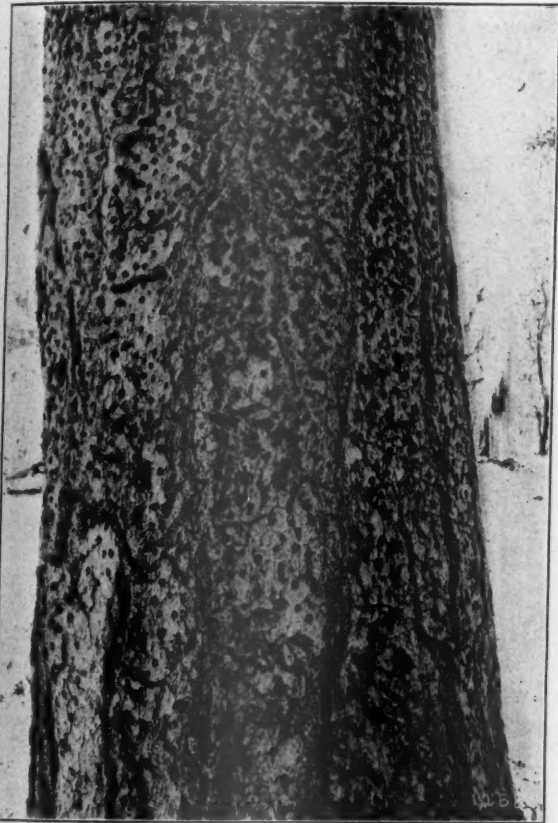
Mention has been made of irregular deposits of pigment. Some finely figured woods owe most or all of their decorative value to this condition. Figured red gum, also variously known as “hazel,” “hazel pine” and “satin walnut,” has a background of brown with a beautiful “watered” effect of dark color on it. Circassian walnut combines this irregular coloration with the grain produced by the growth rings and exhibits a more pronounced figure. The figure of Brazilian rosewood and of the goncalo alves, a South American tree of the sumac family, and of the cocobola so extensively used for tool

alone is figured, is very slender. English oak owes much of its attractiveness to a peculiar mottling of dark brown which is said to be the work of a fungus. In many instances the color of wood is decidedly changed by fungous attacks.

In order to make the most of figured woods it is a common practice to cut them into thin layers called veneers, which are glued to a base or core of some less valuable lumber. There are three ways of cutting these veneers, one with a saw and the other two with a knife. The saw used has a very thin edge and the veneers, which are usually about one-twentieth of an inch thick, may be finished on either face. This is a decided advantage where it is desired to match the pieces and build up patterns, and to this end veneers from a single log, stump,

or burl are kept and sold together. Panels for fine furniture and cabinets are often made by matching four pieces so that a regular quadrilateral figure is produced. All sorts of fantastic shapes and figures may be secured in this way from burls and other gnarly growths.

In the method known as slicing, a rectangular timber called a flitch, after being softened by boiling, is placed in a ponderous machine and brought down against a sharp knife extending the full length of the timber and very thin layers of wood are shaved or sliced off. Spanish cedar for veneered cigar boxes is prepared in this way.



U. S. Forest Service

#### A TREE SHOWING THE WORK OF WOODPECKERS

Some hold these busy little birds responsible for the figure in maple commonly known as "bird's-eye"; but this has never been established.

In rotary cut veneer the log is turned against a knife and a long strip removed, giving the impression that a log is being unrolled like a roll of wrapping paper. Such veneer is, of course, all tangentially cut and in the case of woods with pronounced growth rings and color variations, very striking figure is produced in large sheets without splicing. The ceiling of a car may be covered with a single piece of bird's-eye maple cut in this way.

The artificial "graining" of wood has been practiced for a long time and some of the results obtained by the modern methods of printing from a master roll of real wood are remarkably realistic. Through this means it

is possible to impart a good imitation of mahogany to plain colorless woods and to metals. But there is one thing that such imitations lack and that is the "life" of the real wood, whether solid or veneered. The imitation is at best only a picture which is ever the same, while the real wood responds to every variation in the lighting and presents a new aspect with every change in our angle of vision.

#### THE SONG OF THE PINE

Sometimes my voice is a thunderous roar;  
Sometimes 'tis the softest sigh.  
Elfin songs are sung at my door,  
I harbor the lion's cry,  
And I sing to myself in my solitude—  
For a giant alone am I.

As my needles pick out sharp tracery  
Against the moonlight cold,  
From the edge of a hole in my sturdy bole  
The night owl's cry is rolled.  
The chipmunks scamper along my limbs:  
The squirrels chatter and scold.

Though I snap and crack when the Frost King's free;  
Though I stand as straight as a line,  
Yet I sing you the softest lullaby  
With the wind through my needles fine:  
For I am the restfullest, gentlest tree,  
Although I'm a mighty pine.

I bring you strength through the hours of light,  
And—when dark shadows creep—  
I breathe my balsam to fill your night,  
And send you to slumber deep.  
For I am the symbol of quiet strength—  
And I am the spirit of sleep.

—Orville Leonard.

ON his recent visit to the Philippines, Gen. Leonard Wood planted a memorial tree in the Forest School grounds as a living memorial of the great American whose close friend and confidant he was—Theodore Roosevelt—a staunch advocate of conservation.—*The Ranger*.

A HIGHER course in forestry at the Forest School, University of the Philippines, is being considered. Plans are under way to reopen the advanced course in forestry which since 1914 has been closed, due to lack of competent instructors and professors.—*The Ranger*.

THE United States leads all nations in forest fires. Over 30,000 forest fires occur annually destroying about \$20,000,000.00 worth of timber and property. About 85 per cent of these fires are caused by human carelessness.

## PONY BLIMPS FOR FIGHTING FOREST FIRES

BY WALLACE HUTCHINSON

**T**HE mastery of the air bids fair to solve the crucial problem of the forest fire game—Speed.

It's a long step from the days of the "smoke chaser" riding his lonely forest beat to the 100-mile-an-hour airplane patrol winging its way over mountain and plain. Between these two extremes lies a period during which track speeders, motorcycles, motorboats, trucks and automobiles rose to varying heights of popularity as a means of transportation for patrolmen and fire fighters. Many of these vehicles have found their niche, and their use has settled down to a work-a-day basis. Not so with the airplane. Before our enthusiasm over its use has even commenced to cool, up bobs the Pony Blimp competing for a place in the air.

The Pony Blimp is a small dirigible, manufactured by one of the leading tire and rubber companies of the United States. It seems to embrace all the merits necessary to a vehicle for the transportation of fire crews and supplies, and as a means of effective patrol and fire de-

tection service. The makers specify these advantages for the Pony Blimp: A cruising range of eight hours; speed of from one to 50 miles per hour; ability to buck stiff winds, making 10 miles an hour in the teeth of a 30-mile gale; control of elevation, flying from 25 to 50 feet of the earth as well as at several thousand feet altitude; maneuvering readily at close quarters; ability to land on a very small plot of favorable ground; can be held nearly stationary close to the earth; can discharge fire fighters by means of rope ladders while the machine hovers humming-bird-like over a selected spot near the scene of the fire; can be anchored by tying to a fixed object while the crew is absent fighting fire; can be used for transporting supplies and fire-fighting equipment to points of need; low cost of operation.

The Blimps will be equipped with a Lawrence motor developing about 75 H. P., and will carry three or four persons in addition to the pilot and mechanic. The price of the "ships" will be approximately \$12,000, and the



ALL READY TO START

This is a pony blimp on fire patrol duty over the Angeles National Forest, Los Angeles County. Forester Stewart D. Flint-ham and Asst. County Forester Spence D. Turner (center and right figures on ground) examining a map of the patrol route. Supplies for the blimp,—gas, oil, etc., are in the trailer.



operating cost is figured at 24 cents per mile, including total maintenance of the Blimp for 24 hours, or an actual flying-time cost of 2 1-2 cents per mile. Buoyancy is secured with hydrogen gas; 20,000 cubic feet per month being required for continuous operation. This gas is available in steel containers, holding 191 cubic feet, in all large cities.

The piloting of a Blimp is said to be rather more complicated than that of an airplane, as the operator not only has his motor and steering apparatus to control, but also the gas pressure in the bag. To maintain the proper relation between the weight of the cargo and the buoyancy of the bag at varying altitudes, air is admitted to the hydrogen. This operation requires highly developed skill and technical knowledge.

During the 1920 fire season, a test of the Pony Blimp was made over the Angeles National Forest in California

with excellent results. The dirigible cruised a number of narrow canyons for their entire length within a short distance of the ground, and otherwise demonstrated the practicability of the machine for patrol and fire-fighting work. As a result of this trial, officers of the United States Forest

Service are of the opinion that the Pony Blimp offers a practical solution to many of the forest fire problems in our country. Each year, from 6,000 to 7,000, or more fires occur in the 156 million acres of National Forests, many of which are in remote parts of the mountains

where travel and transportation are difficult and at times impossible, due to lack of existing roads and trails. Here fires often gain tremendous headway before crews of men, equipped with fire-fighting tools and supplies, can be brought into action against the flames.

The use of Blimps would materially alter such conditions. With machines cruising regular patrol routes, it would be possible for observers to "spot" fires in their early stages, and radio the location of the smoke to the nearest base camp where a Blimp, equipped with tools and supplies and manned by a crew of experienced fire fighters, could take the air on short notice. On reaching the scene of the fire after a fast run, a suitable landing place would be selected nearby, the fire crew lowered to the ground by means of rope ladders, and the machine anchored until the fire was put out. Their work done, the crew would return to their base station by the air route,

and await the next call to action.

"Minutes count" in fighting forest fires. A lightning struck tree, a camp fire left smouldering, a lighted match or cigarette carelessly thrown aside in the forest may, if not promptly "spotted" and fought, cause a conflagration that will take days and weeks



(Photograph by courtesy of the Goodyear Tire and Rubber Company).

#### THE PONY BLIMP ABOUT TO START OFF ON AN EMERGENCY CALL

Fully equipped for the transportation of necessary crews and supplies, it is believed that this speedy little dirigible will prove an important factor in the successful solution of the fire forest fighting game.

of hard work to extinguish, and result in the loss of thousands of dollars worth of timber and property. The Pony Blimp, if it lives up to its reputation for speed and efficiency, will prove the biggest factor yet discovered toward the successful solution of the fire fighting game.

## HOW IT HAPPENED

BY CLIFFORD E. DAVIS

This is the match with the phosphorent end,  
That a hunter passed to his city friend,  
Who struck it, lighted his brown cigar,  
Then, looking not, tossed the match afar.

Engrossed with the topics of the day  
The two passed on their careless way;  
While the match fell on a leaf pile dry  
And smouldered—kindled, and then blazed high.

A light wind fanned it; and soon it ran  
Faster than horse, defying man.  
The blaze to tree tops began to soar  
Announcing its power with a sullen roar.

The wild game, frightened, at top speed fled  
But hundreds, pitifully, soon were dead.  
As were thousands of trees that the whole world needs,  
Burned,—even slips, and forest seeds.

And all because "personal liberty" let  
A fool, with a match, all sense forget.

## ADIRONDACK FOREST MUSINGS

BY E. A. STERLING

**Y**ES, the East is cut out; the white pine is gone; the spruce cut or going. From the East, the South and the Lake States the lumberman must move to the Pacific Coast as his mill makes its last run; at any rate he must choose between the virgin timber of the western field, small local tracts at high stumpage cost, or going out of the lumber business. Proof that this general conception of the situation is correct is found in the startling fact that the region within a 500 mile radius of New York City annually consumes some 10 billion feet and produces three; that the wood-using industries of New York State alone import 85 per cent of the lumber con-



BEAVER DAM ON WARD'S BROOK, WHICH HAS RAISED THE WATER LEVEL OVER THREE FEET. THESE INDUSTRIOUS ANIMALS HAVE INCREASED GREATLY THE PAST FEW YEARS AND THEIR DAMS ARE FLOODING AND KILLING CONSIDERABLE TIMBER IN THE ADIRONDACKS.

sumed, Connecticut produces only 15 per cent of its requirements, and New England has under 5 per cent of its original forests left.

This accelerated trend in lumber production towards the West is important to the public and vital to the lumber industry of the East; yet we find in the Adirondack region of New York State that lumbermen have moved east from Michigan and north from Pennsylvania into fields of plenty. This changes the broad phases not a whit, and these fortunate exceptions, with those previously on the ground who still hold sizable areas of convertible timber, are like rabbits in clover with markets for every kind and grade of forest product at their door. And with this market they are the ones who can afford to plan continuous production if their holdings are large enough; to them the cycle of values, based on available supplies, has brought forestry into the status of a commercial asset rather than a vision.

So in our consideration of shifting timber supplies and of the exceptional operations which do not change the economic trend, we come to the little lumber-built village of Tupper Lake, New York. In the heart of the Adirondacks, founded as a mill town many years ago, existing through the changing years with a prosperous sawmill at its back and now looking forward confidently to at least 30 years more as a lumber town, "Tupper" is at least unique among North woods villages. Elsewhere in the Adirondacks the lumber settlements have become tourist resorts or gone to seed, except in the few cases where pulp or paper mills give permanence, but Tupper Lake continues to prosper from its mill and logging operations, with tourists making little impression as they pass to and fro or tarry on the shores of its adjacent lakes and streams.

The past in this Adirondack center is closely linked with the present in the Santa Clara Company, which for many years has brought its drive down the Raquette and manufactured spruce lumber in a mill at the edge of the village on the shore of Raquette Lake. This mill is still turning out its hundred thousand feet per day during the summer season, and if the "whine of the saw"



LOADING HARDWOOD LOGS AT CROSS CLEARING, EIGHT MILES FROM TUPPER LAKE. THE END OF THE FIRST LOGGING ADIRONDACK RAILROAD BUILT TO HAUL HARDWOODS. THESE LOGS WERE PRODUCED IN THE DEMONSTRATION CUTTINGS OF THE NEW YORK STATE COLLEGE OF FORESTRY OF CORNELL AND WERE MANUFACTURED INTO SLACK COOPERAGE.

is not heard on the village streets as proof of an industry still running strong, it is because this mill runs too quietly and efficiently to have anything to whine about.

For it is a model of its kind and size, with a wide repu-

tation for economy and a record for output per rated capacity which is known and envied throughout the whole north country. Built originally as a "double band," it has been refitted and improved until now, on a single band and gang, it makes its daily addition of 100,000 feet to the stock piles as regularly as the working day comes, and under a burst of speed and tightening of efficiency, has turned out a record cut. But hanging up a record is not the aim nor end of the management, but rather the regular delivery of the season's log cut on the spring drive, and the everyday sawing of good boards. Complete utilization is actually practiced, the small logs not suitable for boards being cut into pulpwood bolts and rossed and the waste pieces converted into chips for pulp, so the burner stands only as a monument to earlier market conditions when waste was waste because it could not be sold.

The third generation of a family of lumbermen is represented in the present Santa Clara management. Here is no "shirt sleeves to shirt sleeves in three generations," but a family which has written its name large and clear in the annals of Adirondack lumbering. Their logging

dacks, has been held for many years as the Santa Clara Preserve, while on portions of the cutover land plantations have been established to maintain a forest cover.

Of more than passing human interest is the fact that Eugene Bruce, the well known and widely beloved logging expert of the Forest Service, who died last summer in Washington, was a man from the Tupper Lake region, of long service with the Santa Clara company. When the drive was hung up or a difficult logging problem encountered, it was "Gene" who was sent for, and he never



LOGS ON AMPERSAND BROOK READY TO GO OUT ON THE SPRING FLOOD WATERS TO THE SANTA CLARA MILLS AT TUPPER LAKE.



AMPERSAND POND: THIS IS PART OF A PRIVATE PRESERVE IN THAT FAMOUS SECTION OF THE ADIRONDACKS MADE FAMOUS BY DR. VAN DYKE'S "LITTLE RIVERS."

failed to put it through. Nor was his field limited to logging, for a better all around woodsman and guide was never raised in the north woods. He knew the ways and haunts of the game, was a crack shot with the revolver and rifle and an expert in the water, whether in guide boat or on a burling log. To him many men in responsible positions today owe their knowledge of woods craft and logging, not to mention the inspiration of a virile character strong enough to go from a place as woods foreman in a little northern village to a position in the federal service, where his field and reputation became nationwide.

Tupper Lake's past was founded on softwoods; its future is assured by hardwoods. The transition is gradual with the full separation still to take place. Twenty years ago hardwood was considered of little value, with efficient logging methods still to be developed. Then through the vision of a man trained as a forester in European schools and theory a slack cooperage plant was established at Tupper Lake, which was *the first extensive hardwood utilization plant in the Adirondacks* if not in the whole northern forest. *And his object in starting this plant was to get rid of the hardwoods so that a softwood forest could be planted in their place.*

Today, between Tupper Lake village and the Junction stands a steel and concrete plant devoted exclusively to

operations around Mt. Seward and on its steeper slopes have called for the application of highly developed methods on difficult ground, but in taking the commercial softwoods, fire protective measures were applied so effectively that valuable stands of young conifers and virgin hardwood were left on the extensive areas purchased recently by the State for incorporation into the Adirondack Park. A large area in the most beautiful part of the Ampersand region, made famous by Dr. Henry van Dyke in *Little Rivers*, and known to those who wander off the beaten paths as one of the gems of the Adiron-



the intensive manufacture of hardwoods. This Oval Wood Dish Corporation plant is not only one of the largest and most modern of its kind, but it is backed by a supply of standing hardwoods which will last for at least 30 years. A reasonable degree of permanency is, of course, necessary for an expensive plant of this kind, and in the Adirondacks was found the necessary supply of birch, beech and maple which justified the heavy investment made. This company started in a small way in Michigan many years ago, the management passing along from father to son with a steady expansion to the present large dimensions.

One is surprised to find such a large manufacturing enterprise in the heart of the Adirondacks, and this feeling of amazement is strengthened on going through the

themselves, but to the forester the most striking thing is that they are converting the Adirondack hardwoods, the profitable removal of which has always been a difficult problem, into millions of articles which find use in thousands of homes.

Over the hills a few miles away is another large timber holding and operation devoted to the manufacture of hardwood lumber. This Emporium Lumber Company tract and mill also found in the Adirondacks, after years of cutting in Pennsylvania, a supply ample in amount and suitable as to quality for their requirements. Here also much thought has been given to practical utilization and to the protection and regeneration of cut-over lands. One of the best known and most competent lumbermen-foresters in the United States said, after visiting the prop-



PLANTATION OF SCOTCH PINE NEAR AMPERSAND POND, SANTA CLARA COMPANY. THIS COMPANY HAS FOR MANY YEARS BROUGHT ITS DRIVE DOWN THE RAQUETTE AND MANUFACTURED SPRUCE LUMBER IN A MILL AT THE EDGE OF THE VILLAGE ON THE SHORE OF RAQUETTE LAKE. THIS MILL IS A MODEL OF ITS KIND AND SIZE, WITH A WIDE REPUTATION FOR ECONOMY AND A RECORD FOR OUTPUT.

plant. Here is found the complete utilization which means actual conservation of forest resources. In an overmature forest which is past its prime, logging is done as closely and to the smallest sizes which it is possible to use. At the mill these logs, despite the large percentage of defects in some cases, are converted into products which include lumber, clothes pins, oval-cut dishes, veneer stock for many classes of stapled dishes, boxes, and various novelties. Practically nothing is wasted, because all of the sound wood from blocks and veneer logs is converted into usable products, and the defective or waste pieces find ready market for fuel. The processes and almost humanlike machines which produce the varied assortment of wooden-ware dishes are a story in

erty and talking with the officials of this company, that the plans they are quietly making and the opportunities which they expect to develop, because of the advantages and size of their holdings, give promise of becoming one of the largest and most successful forestry projects in the state, and with the policy contemplated continuous production on the same area is feasible and assured.

What does all of this mean to the forester? It first provides a solution of the long recognized problem of removing and utilizing the mature hardwoods, in order that a more valuable and faster growing forest may take their place. The original conception was that softwood trees should replace the hardwood, but market conditions have so radically changed in the last 20 years that the forest

economics of the case may bring a modification of the former silvicultural plans. In other words, if the trees which grow best in any particular location are made the progenitors of the future forest, it is a reasonably safe assumption that the relative ultimate values of different species will take care of themselves.

The highest wood production from the land, with fire protection and regulation of cutting which assures the maximum volume per unit of area, will provide about all that can be expected in the Adirondack forest or anywhere else. The most that foresters can do is to help nature, and if too radical changes are attempted nature rebels and goes her own way, despite all theories and policies to the contrary. To replace a tract of pure and mature hardwood forest by planting evergreens may succeed, but the natural rotation proceeds by less abrupt stages and ecological influences must be considered.

The first demonstration forest in New York State, if not in America, was located a few miles from Tupper Lake, and here was accomplished the first extensive removal and commercial utilization of Adirondack hardwoods and their replacement by softwoods. If political influences had not prevented the carrying out of their experiment under the theories advocated, much more would be known now after 20 years as to feasible methods and actual outcome. In lieu of this, we have on comparatively small areas dense, vigorous growing plantations of exotic trees, the Scotch pine planted near Wawbeek and Axton being the commercial pine of Europe which has been transplanted bodily to this new environment. Some experts say that these trees will never attain commercial maturity, despite the fact that at the present time they are healthy and rapid growing. Neither the native nor Norway spruce, planted at the same time, have succeeded as well, although white pine has thrived unless damaged by the leaderweevil. It is an interesting proof of the youth of forestry in America that the white pine seeds planted in the Wawbeek nursery in 1899 were imported from Germany and were gathered from a planted white pine forest near Frankfort which was propagated from seeds obtained in this country over 100 years before. The seeds from our own white pine trees were ungathered and unavailable from seedmen until forest planting became an established practice in the regeneration of our forest lands.

On the demonstration hardwood cuttings where softwoods were not planted, nature with her abhorrence of

barren areas reseeded the ground with a dense stand of miscellaneous hardwood. The composition of this young forest is not all that could be desired, but the ground is clothed and the ultimate suppression of the less desirable brushy growth will finally give a hardwood forest of definite value. On other areas it has been observed that where fire destroyed the slash and the vegetable humus, contrary to the desires of both man and nature, the recuperative power of the forest has shown itself by a restocking with conifers. But abuse of this kind cannot be carried too far, or too long continued, as is evidenced by the most unfortunate phase of the whole Adirondack situation, namely the large areas which have been burned over repeatedly until forest growth of valuable character either large or small is practically lacking. Here there can be only one policy; that of replanting and stringent fire protection.

Foresters have advocated the removal of native Adirondack hardwoods, and if the accomplishment of this turns out to be the best for the forest it will be from continuous wood production by private owners, because it pays, or through the ultimate incorporation of cutover lands in the state preserve. In either event, the Tupper Lake region is one which foresters will watch and study with much interest and profit, while from an industrial standpoint the new lease of life given by hardwood production is an advantage to the community as well as to the State. The transition period is at full flood with beech, birch and maple replacing the white pine, spruce and balsam and hemlock which has been coming into the Tupper Lake booms for many years. There is still some mature softwood within reach of the Raquette, but even if the best forestry is practised and it proves feasible to replace the hardwoods with conifers, it will be a long time before logs from the new softwood forests will begin to come down on the spring drive. In the meantime, pending the stabilization of theories and policies, the best promise of forestry is in active manufacturing operations on a large enough scale to justify long-time production and permit complete hardwood utilization. Such private enterprises, combined with the elimination of the constitutional bar to state forest management would ultimately create an Adirondack forest of high productivity, instead of one from which income is restricted or prevented, and the deteriorating trees preserved as souvenirs, while the people of the state import their wood products from distant points.

**M**ATERIALS for the successful exploitation of a paper industry in the Philippines are plentiful, says a Bureau of Science bulletin. Cogon (a tall fibrous grass), soft grasses, and forest trees abound in the Islands. Cana bojo, a species of bamboo grown in various sections of the Philippines, but more especially in Central Luzon, produces high grade paper, experiments show. Cotton, rags, and office paper refuse would also make excellent paper material. The Philippines can never be lacking in high grade materials for paper making, and tremendous possibilities await the pioneer in the industry."

**T**HE forests of the Philippine Islands are valued at \$400,000,000, and could well afford a good source of revenue for the government, says the Director of Forestry of the Philippines.

"If these forests," he points out, "are properly handled like the forests of other countries, money could be invested on them by prospective lumber dealers by selling or leasing them. And should this happen it is a sure thing that our government wouldn't be floating bonds in the United States as it is doing now."

# THE ANCIENT FOREST OF CAMALDOLI IN ITALY

BY NELSON COURTLANDT BROWN

(WITH PHOTOGRAPHS BY THE AUTHOR)

NESTLED high in the cool silver fir solitude of the Tuscan Apennines and far removed from the dust and smoke of the busy cities of central Italy, the ancient hermitage of Eremo di Camaldoli, the home of the learned and devout Romualdensian Order of Benedictine Monks, takes one unwittingly and pleasantly back to more peaceful times. It seemed a place quite apart from the thrill and throb of a world war when I visited it, but even then the distant dull boom of the heavy cannon along the Piave River could be heard from the high peaks of the mountain heights above the quiet hermitage. Our high-powered Isotta-Fraschini car seemed quite out of place in these peaceful surroundings, as we noisily drew up the steep grade and stopped with a rush at the ancient gateway of the Priory. We were greeted and welcomed by the quiet Prior, Don Basilio Casadei, and he told us as we strolled

about the story of the place which has been the objective for pilgrims for nearly a thousand years.

In the wave of things religious which followed the Dark Ages and preceded the Crusades, it had become the custom in Italy for the religious leaders to retire at regular periods to some remote retreat for "meditation and prayer," and many of the noble class, renouncing their worldly life of ease and pleasure, went in voluntary exile or assisted others in establishing sanctuaries far removed from the temptations and distractions of urban life. One of the best-known instances of this "new order of things" was the presentation of the famous Monte Alverna, or LaVerna, as it is often called, to St. Francis

of Assisi, by Orlando, Count of Chiusi, a noble of large possessions in the Casentino in 1213, as a retreat for solitude, prayer and meditation. Here St. Francis spent much of his time and one of the features of the activities of his monks and followers was the cultivation of the splendid silver fir and beech forests. Since the year 1224, this fine old forest, which even today, in spite of a somewhat long and arduous journey off the railway, attracts its annual quota of many devout pilgrims, has received

continuous scientific care of its forests and today is one of the municipal forests of the city of Florence with a trained forester in charge. The forest of La Verna is sometimes referred to as the oldest known example of continuous forestry practice. Records have shown, however, according to Dr. Egidio Ferrari, an Italian Government forester, and the Prior Don Basilio, that the beautiful forest of



AN ANCIENT ITALIAN FOREST

One of the beautiful walks through the dark cool forests below the ancient Hermitage and near the monastery of Camaldoli. These silver fir trees have been planted by the monks about 50 to 70 years ago and have received constant and skilled attention in accordance with the terms of the gift of the forest to the sainted monk Romualdo, in the year 1012, by the Count Maldolo.

Eremo di Camaldoli is not only the oldest example of continuous culture under scientific forestry methods, but it served its highest usefulness in helping to meet the great war emergency by supplying much needed timbers and lumber for the front. It seemed that for this very contingency, indeed, it had stored up a great forest reserve and fine old specimens of silver fir from 100 to 200 years of age were felled to meet the urgent call. And still more glorious, its future records will show to an admiring posterity, how of a normal staff of fifty monks, all but nine served their country and humanity by repelling the Austrian invader at the front.



We listened in rapt attention to the story as recited by the venerable and gracious Prior, as we strolled through the hermitage grounds surrounded by and picturesquely set in the tall, sombre, silent forest. In the early days of the Casentino in Tuscany, a monk of noble blood, Romualdo, by name, established a wide reputation for his devotion and sanctity until he came to be called San Romualdo. The Count Maldolo, attracted to him and impressed by his kindly manner, made a present of his large forest domain of about 2,000 acres, lying high along the crest of the Apennine Mountains, about 50 miles southeast of Florence, in the headwaters of the storied Arno. Here the count had spent much time in hunting and fishing while stopping at his forest villa. This was in the year 1012 and one of the stipulations of the gift was that the forest must be maintained for all time in good condition and must be "planted, improved and cultured" according to the most approved principles of scientific forestry. The monks interpreted these instructions literally and as a result of their studies, experiments and observations the forest was kept in an excellent condition, as shown in the archives of the old institution.

Aside from the maintenance of the forest, the monks became renowned for their skill and proficiency in the manufacture of medicines from forest herbs and an excellent cordial, the process for which is kept as secret as that for the famous Chartreuse.

The Benedictine monks of this hermitage maintained the forest down to the year 1866, when it was taken over by the Italian Government. Later it was reorganized and placed under a government forester in 1872, but the monks to this day still wear the same cowl and cream-colored habit and observe the old customs laid down centuries ago. Many pilgrims annually visit the old priory, the monk's cells, the chapels and the interesting old relics, such as an original Della Robbia altar piece and a fine old 16th century oratory carved in solid Italian walnut.

The old water-wheel-driven sawmill, practically as it was built about 1550, is still used to cut lumber. In 1915, when Italy entered the war, a larger mill was set up and over 3,000,000 board feet of lumber were cut and rushed to the battle front. Fortunately, the forest, as it was lumbered, was replanted at once to silver fir so that in a few years little evidence of the destructive cutting, which has stripped the forest bare in places, will be left.

A large share of the forest is silver fir, with a small portion of beech and a still smaller area of Italian chestnut. The fir has proved to be the most profitable from the viewpoint of financial returns, as well as most pleasing from an aesthetic viewpoint. It is cut at an age of 90 to 100 years ordinarily. Beech may be cut for charcoal at 25 to 50 years of age, while chestnut is maintained largely

for the nut crop. The forest is continually thinned and attended so that the maximum growth is attained and every effort made to exclude fire, insects or disease of any kind. It is said that the Count Maldolo and his family even before the transfer of the property in 1012 to San Romualdo and his devoted followers had for some time been interested in the preservation



IN THE CAMALDOLI FOREST

A shrine in the silver fir forest below the Hermitage where the monks spent much of their spare time in meditation and prayer. A fine new road has been built by this revered spot by the Italian Forestry officials.

and care of the forest. The archives show, however, that such excellent care and attention have been given the forest for the past several centuries that the area of mature and productive forest is larger today than ever before, the inferior species having been discouraged and "weeded out," while vacant spaces have been planted and brought under intensive cultivation. Many of the largest silver fir trees being cut for the army at the front had been planted over a century ago by the monks. Only the mature trees, an amount equivalent to the annual growth of the entire forest was permitted to be cut, and from this yield alone the hermitage made a substantial income. Eventually, as the order prospered, missionaries were sent out from the hermitage as far away as distant Poland and Hungarian Galicia, where the monks



THE PRIOR OF THE HERMITAGE

Eremo di Camaldoli, Don Basilio Casadei, at the gateway of the ancient home of the Romualdensian order of Benedictine monks, far up in the silver fir forests along the crest of the Apennine Mountains of Tuscany, in Central Italy.

carried their precepts of forest culture as well as their religion.

At the present time the Forest of Camaldoli, embracing the old Hermitage and its ancient forest, is one of the State Forests and consists of about 3,750 acres. Aside from the forest inspector in charge, there are six forest guards, two forest brigadiers or rangers, and generally about 200 workmen employed, on the nursery of 25 acres, in reforestation work, in road, bridge and trail improvement and construction work, cutting in the woods and in activities about the primitive old sawmill. During war time many more men were employed in getting out logs and timbers.

An annual appropriation of 70,000 lire (\$14,000) was made for the support and maintenance of the forest before the war. The returns were about 170,000 lire annually (about \$34,000), or a net annual profit of about \$20,000 for the entire forest. The forester in charge explained that for the major portion of the forest a net yearly return of about 70 to 80 lire per hectare was obtained before the war. This was equivalent to about \$5.60 to \$6.40 per acre per annum, which is a better financial income than the returns shown for the best French, German or Swiss forests.

The silver fir stands at about 100 years of age, produce from 500 to 800 cubic meters of wood per hectare, while the beech is usually cut at 25 years of age and yields 150 cubic meters per hectare. When left to a maximum age of 90 years the beech will yield up to 450-500 cubic meters per hectare. Before the war, silver fir stumpage was worth about 25 lire (about \$5.00) per cubic meter, under average conditions; during 1918 it was worth 130 lire (about \$26.00). Beech brought 15 lire then, now it is worth 60 lire per cubic meter.

The beech is used almost entirely for charcoal, because when converted into the lighter form it can be transported to market so much easier. In marking trees to be cut for charcoal, the Government foresters leave about 100 trees per hectare (2½ acres) for natural seeding purposes. Before the war, contractors paid 5 lire for wood enough to make one quintal (220 pounds) of charcoal, whereas in 1918 it was 12 lire for the same amount. In one year 750 tons of charcoal were made from this forest alone.

The chestnut crop was an important item in the returns of the forest, an unusual figure to an American forester, a total of 4,000 lire (about \$800) being received annually from this source alone. In Italy several hundred thou-



ART IN WALNUT CARVING

The old oratory in the chapel, carved several centuries ago, in Italian walnut and still in an excellent state of preservation. It is one of the finest of the old Tuscan wood carvings.

sand tons of chestnuts are annually harvested and they have been an important contribution to the critical food supply of the country—about two-thirds of the whole amount being used for chestnut flour, while the remainder was used for roasting and general cooking purposes. Before the war, about 70 lire per year per hectare was paid, equivalent to about \$5.60 per acre, by the contractors for the privilege of gathering the chestnuts or "Marroni," as they are called, whereas during 1918 about 210 lire was received per hectare for the right. The latter means an annual income of about \$16.80 for the privilege of gathering the chestnuts alone from each acre. The lessor does all the work of harvesting and agrees to leave the trees in good condition. It is said that about 330 pounds of chestnuts were obtained per tree in the average orchard. In 1914, the large, sweet nuts brought



MONKS MANAGE THE FOREST

Three of the Romualdian Order of Monks outside one of their cells, where an original Della Robbia forms the altar piece. The monks still retain most of their manners, customs and dress which were in vogue when the Hermitage was established in the year 1012.

6 lire per quintal, or about \$1.20 per 220 pounds. In the city markets; in 1918, they commanded the high price of about \$8.00 for the same amount. This means an average income of about \$12.00 per tree. In many Italian forests, the privilege of harvesting the annual chestnut crop is leased for a period of nine years. The nuts are transported to market on donkey back, each animal carrying an average load of about 200 to 250 pounds in one large sack, a distance of 12 miles to the nearest village which was used as a distributing center.

The lumber from the busy sawmill was sent down a "telliferrice" or cable way, in the same manner in which food supplies and munitions are carried up the steep Alpine summits to the men along the high mountain battle front. The mill was equipped with two gang saws, the logs being run straight through, and the plant was kept busy night and day to meet the urgent call for more



THE OLD MONASTERY

The original Hermitage building constructed in the year 1012, when the Forest of Camaldoli was first placed under systematic management. The Prior Don Basilio Casadei in the foreground.

and more lumber. In two ten-hour shifts, the mill had a capacity of about 50,000 board feet per day. Nothing, literally, was allowed to go to waste, the sawdust being used for fuel while the slabs and edgings were made into charcoal or consumed locally as fuel.

The fine old forest of Camaldoli furnishes one of the best examples of the successful results of forestry practice. Although old historically, Italy is still young as a nation, being scarcely 50 years old, and even before the war extensive plans had been made by the Director General of Forestry, Professor Antonio Sansone, and the



THE OLDEST SAWMILL IN EUROPE

The old water-wheel driven sawmill built in the sixteenth century, which is still in operation, cutting lumber from the old and mature trees and which has recently been busy turning out material for the armies at the front. This is no doubt one of the oldest, if not the very oldest, sawmill still in operation in Europe—certainly it is the oldest in Italy.



Minister of Agriculture, His Excellency, Signor Miliani. During the past several centuries, the forests of Italy have been neglected as much as those of almost any other



#### ITALIAN FORESTRY OFFICIALS

These foresters are watching operations on the Camaldoli Forest. From left to right: Camillo Parisini, general manager of a large lumber company, cutting state forests for the war program; Dr. Egidio Ferrari, chief forester at Camaldoli, Professor Giuseppe Di Tella, of the Royal Forestry College at Florence, and Mr. Martinetti, of Florence.

country, and such forests as those of Camaldoli show practical and scientific examples of what can be done under a systematic and continuous forest practice. Only



#### THE HERMITAGE AT CAMALDOLI

Looking up the main street of the Hermitage of Eremito di Camaldoli, with the old eleventh century cells of the monks on either side and the Prior, Don Basilio Casadei, standing in the foreground.

about 17 per cent of the total area of Italy is now under forest cover. The professors at the Royal Forestry College at Florence estimate that at least 30 to 35 per cent of the total area of the country should be covered with

forests. Italy is an exceedingly mountainous country and land unsuited for agriculture or for vineyards, or olive trees should be turned into timber growth to supply the increasing demands of Italy. Under normal conditions Italy has been one of the most important lumber importing markets in Europe, and she now sees the wisdom of placing her vast mountain waste under a progressive system of forestry such as has been carried out in France, Switzerland and Germany. After many years of experimentation and trials with various kinds of timber trees, the Italian foresters have adopted the silver fir as the most promising species to cultivate in future forests. Many forests cut to maintain their vast army of 5,000,000 men at the front during the war have been replanted with the silver fir. Austrian prisoners were used for this work in war time. Future generations in Italy, no doubt, will find thousands of acres along the beautiful ranges of the Apennine Mountains, which impress one now as being largely barren of forests, and especially in the hot summer season, covered with a beautiful green foliage of the silver fir which already lends so much attractiveness to the landscape not only at Camaldoli, but at other attractive forest resorts, such as Vallombrosa, Boscolunga and other well-known places in central Italy.

"October is the month for painted leaves. As fruits and leaves and the day itself acquire a bright tint just before they fall, so the year nears its setting. October is its sunset sky; November the later twilight."

### "THE FALL"

By William Edward Hayes

SO wondrous now the cloak she gives the world  
 Beguiling all with mottled tint and hue,  
 She steals across the land in darkness hurled  
 And softly paints the dress of earth anew. :: ::  
 With chilling hand of death she points in scorn  
 To tender bud that fain would seek the sun  
 For just another day, and then forlorn  
 Its petals close, its life forever done. :: :: ::  
 What tale is this the Autumn tells again?  
 It softly speaks of swiftly fleeting youth  
 That tarries not where memories remain,  
 And thinking thus we shudder at the truth. :: ::

OUR race we run so fanciful and free  
 Until the Autumn halts our revelry.

FOUR thousand five hundred maple treelings were sent recently to France from Canada. These maples are to serve as living monuments for that fearless band of Canadian soldiers who fell at the famous battle of Ypres.

# THE MOUNTAIN LION, OCELOTS, LYNXES AND THEIR KIN

BY R. W. SHUFELDT

IN the United States we have a number of very handsome representatives of the Felines, the Jaguar, the Ocelot, the Cougar, Lynxes and so on. Most of them have been so hunted and persecuted by man that they are all near the point of extinction, in fact, in most parts of the eastern United States such forms as the Cougar have been completely exterminated. No example of that animal has been seen or shot within the New England States for a period of over fifty years.

Of the many sketches and life histories of the Mountain Lion that have appeared in print in the way of

the species, not one in ten of the old hunters of that region would know what animal was meant. Doubtless Puma and Panther would stand in a similar case in still other districts. Cougar, however, is probably the name by which the species is most generally known.

Owing to man's incessant persecution and destruction of all the larger *Felidae* in all parts of the world, they have become, to a greater or less degree, great cowards, and to this state the cougar forms no exception. So far as the animal is concerned, its attacks upon man have been matters of bitter experience to it, and the species has come



MALE OCELOTS AT PLAY

These handsome animals of the cat tribe are found throughout South America, northward through Mexico, from which country the animal occasionally passes into Texas and southern Louisiana. It is one of the most striking representatives of the family to which it belongs.

magazine articles and works on natural history, one of the fullest, most accurate and interesting ones is from the pen of that great hunter, Theodore Roosevelt. Up to the time of his lamented death, Colonel Roosevelt had hunted and killed more Cougars than any man of his time, and it is worth anyone's while to read what he has published about them.

Any one of the various names given to the animal in its application will depend upon the part of the country where it occurs. Years ago, when the writer hunted through the Big Horn Mountains in Wyoming, and in the Dakotas, this famous cat was generally known as the Mountain Lion, and to apply the name of Painter to

to learn, in time, that it would either lose its life or it would be painfully wounded. At the same time, the latent spirit of its kind will occasionally be aroused, and when driven into a tight corner, a cougar will exhibit considerable bravery. When driven to it, an old male will promptly engage a number of tracking dogs turned loose upon him, and plenty of instances are on record where he has not only successfully held them at bay, but often killed one or more of the most powerful of the pack.

Horses and grown cattle have often been slain by cougars, and such instances are probably by no means at an end in the wilder parts of the country where the

animal is still to be found in numbers. They go abroad during the day as well as the night, but most often during the latter; when hunting their prey they pass, like all cats, noiselessly and stealthily through the timber and the undergrowth. When not engaged in searching for food, they take great pleasure in stretching themselves out, sometimes in the shade, but mostly in the direct rays of the sun, choosing either some ledge of rock or a convenient limb in a tree. They kill many deer as well as other animals, and sometimes even make the unfortunate mistake of tackling a porcupine, the quills of which upon getting into the mouth parts and throat, may result in their death.

The voice of the cougar varies with the nature of the circumstances under which it is uttered. When being mauled by a pack of dogs it gives vent to all those squalls, hisses and howls common to all cats, both big and little, when being badgered. When hunting at night it sometimes gives vent to a terrific scream that may be heard for a long distance.

Colonel Roosevelt in hunting cougars had at least two hair-raising close calls, that tried even his marvelously steady nerves in stress and danger. He said "never to move in attacking a panther, who knows he is being pur-

sued, until you are sure of the location of your game. No animal realizes sooner that he is being hunted than the panther, and the instant he does know it his wariness, cunning and native ferocity will appear to a wonderful degree. He never hunts for a fight, and will always avoid one if possible; but when he realizes that 'fight it is,' he follows the advice of a very skilful pug-

list, who said to his pupils: 'If possible, always get in the first blow.' And that first attack will be delivered with a savage rush into the midst of your pack of dogs, and a killing right and left."

According to Colonel Roosevelt, in Colorado the cougars may drop their young at almost any time between January and June, and the females far outnumber the males. Three kittens is the usual number at a birth.

Some thirty odd years ago Mr. John Mortimer Murphy related for us a good story about cougars, or pumas, as he styled them. He referred to the cougar of Florida, in which State he says the animal is not systematically pursued, al-

though the heavily-wooded country affords excellent opportunities for indulging in it. The majority of hunters are more afraid of this powerful cat than of a bear, and seldom molest it unless they have every advantage. It is exceedingly destructive to stock, especially sheep,



THE MOUNTAIN LION

Next to the jaguar this is the most powerful of the feline kin in America. It has a number of common names, such as puma, cougar, painter and panther. The mountain lion formerly ranged throughout eastern North America, but is now extinct in that section. It is, however, occasionally found in Florida.



hogs, calves and foals, often seizing them in open daylight under the eyes of their owners.

"When wounded, it fights fiercely, and, if pursued by dogs, moves away in a series of powerful leaps, until it finds shelter in a large tree, where it extends itself on a convenient bough and awaits the arrival of its foes. It may or may not leap upon them from its retreat, but, if it does, some of them will never leave the base of that tree alive. It fights much as a domestic cat does, but far more furiously, and spits and snarls, tears and bites, jumps actively, and humps its back until it looks more like a maniac than an animal with an atom of sense in its head. Being exceedingly lithe and muscular, it can destroy a small pack of hounds in a few minutes, and escape with only a few scratches.

"It is quite an easy matter to follow a fleeing puma,

and by the same method—a draw act, and its long, pointed teeth can pierce the neck of a deer or a man at the first grip of its powerful jaws.

"Some persons consider this animal cowardly because it will not attack man every time it sees him. This is a very poor reason by which to judge it, for not even a lion, grizzly bear or rhinoceros will assail the lord of creation without cause. If these critics were to meet the cougar when it is suffering from hunger, wounds or even petulance, they would soon change their opinion, and credit it with the courage to which it is entitled. It is true that the burly brute will often follow a man for miles, waiting for a favorable opportunity to attack him, and turn back every time he faces it; but this is characteristic of nearly all the cats, whose only means of securing their prey is to pounce upon it suddenly from selected



A MAGNIFICENT LEOPARD

This is an unusually fine specimen of the cat family from Africa, shot by Col. Theodore Roosevelt. It has been stuffed and mounted by W. L. Brown of the United States National Museum, where it is now on exhibition.

as it always travels in straight lines, and seeks refuge in the most umbrageous forest giants. Its tracks are also easily detected, being round and readily apparent in the moss that often grows at the foot of trees. Good dogs follow its line with much spirit, and on approaching its retreat become wild with excitement.

"Should it bound among them they attack it fiercely, generally on the sides or rear, as they seem to know instinctively that its fore claws are its most dangerous weapons. Experienced animals may have several fights with a puma before being touched; but those more courageous than cautious are liable to be killed at the first onslaught. Its nails cut like a keen Mameluke sword,

positions. Whenever it does assault, however, there is no retreating then; it is victory or death. I have known the animal to injure men for life, and I have seen it turned from its demonstrations for an attack by steadily staring it in the eyes. Few wild animals can face the steady gaze of a fearless man, especially if they are not rendered furious by hunger; yet I have seen buffaloes that could, and did, do it, and ignominiously routed the individual who tried to subdue them by such a method. They would not be stared out of countenance by anybody.

"I am acquainted with a native who caught four pumas with his lasso while they were going at full speed; and I once met a Digger Indian in Northern California

who told me that he had killed one with his pocket knife. The animal jumped on him one day while he was skinning a deer, and he slashed at it wildly with his knife. He was fortunate enough to strike it in the eye, and before it could recover from that blow he thrust his blade into the second eye, destroying both. He finished the assailant at his leisure, and for this accidental feat became a renowned hunter, warrior and sub-chief among his people.

"Cows with calves and mares with foals have been seen to kill pumas; then, again, the latter have been known to be victorious."

In former geological ages there ranged over the territory we now know as the United States some enormous representatives of the cat tribes; these have, ages ago, become utterly extinct. The most formidable among them were the famous sabre-toothed tigers.

Some mammalogists include all the American Leopards in a special group of the genus *Felis* called the *Leopardus* group, assigning the Lynxes to another — the group *Lynx*. The first includes the largest cats in the United States fauna, and, though designated as leopards, they are not all spotted as the popular mind takes all

leopards to be. In fact, this only applies to the Jaguar (*F. h. henningsii*) and the Ocelot (*F. p. pardalis*), while the Yaguarundi (*F. yagouaroundi tolteca*) and the Eyra (*F. eyra*) are essentially plain colored animals. As will be seen from the descriptions given elsewhere, some of the lynxes are spotted, and some are quite plain and devoid of any pronounced markings. Elliot remarks that some of the varieties of the *Lynx* "hold a very questionable distinctive rank," in which statement I entirely agree with him.

As a comparatively near relative of the Cougar we have, in this country, the Jaguar, a magnificent representative of the *Felidae* or Cat family confined to the extreme southern part of the United States, and they may occur in any suitable region from Louisiana to Arizona. Personally, I have never met with the jaguar in its native haunts, and there are but very few Ameri-

can naturalists or hunters who have. The writer is the first to have published an account of its occurrence in Arizona. It was based upon the perfectly reliable statement of the late Mr. Herbert Brown, of Yuma, Arizona, who wrote in regard to it in April, 1902. In his letter Mr. Brown said:

"I send you the photograph of a very interesting animal which was killed in the Rincon mountains, about twenty-five miles east of Tucson, on the 16th of March last; it was killed by two Mexican scalp hunters. They were in the Rincons, above the Cebadilla, when their dogs found the trail of what appeared to be a very large California lion. After a short run the animal was overtaken, and two dogs were killed in the mix-up that followed. It was finally driven into a cave, smoked out and killed. An examination of the photograph will show where a bullet entered the skull a little to the left of the

right eye; another went through the shoulders, but that cannot well be seen. It measured six feet seven inches from the point of the nose to the base of the tail, and nearly ten feet from tip of nose to tip of tail, nineteen inches around the forearm and twenty-six and a half inches around the head. In the skull you will notice that



THE MEXICAN JAGUAR

This big leopard-like cat often has a length of nine feet from tip to tip. Occasionally it is found in Texas, southern Louisiana and New Mexico, while it ranges southward through Mexico, Central America and South America.

the lower right canine tooth has been broken off, but otherwise the teeth are in perfect condition. The skin and skull are in possession of William C. Brown, of Tucson, to whom I am indebted for measurements and photograph. The animal was a male and very fat.

"I do not think the habitat of this jaguar (*Felis onca*) has ever been credited to Arizona; but you will, I think, agree with me that it is fairly well established. Within the last few years several have been killed in Southern Arizona. One was killed in the Chiricahuas, one in Baboquivaris, and one near Globe. Of the last there were two together, but only one was secured. Another is known to frequent a small range of rocky hills about five miles north of the Tortolita mountains; it was last seen on the ninth of March, and a determined effort is shortly to be made to get it. There are numerous other instances in which it has been taken, but I do not now

definitely, recall them to mind. I have seen several hides brought in by Papago Indians of animals killed in the mountains southwest of Tucson."

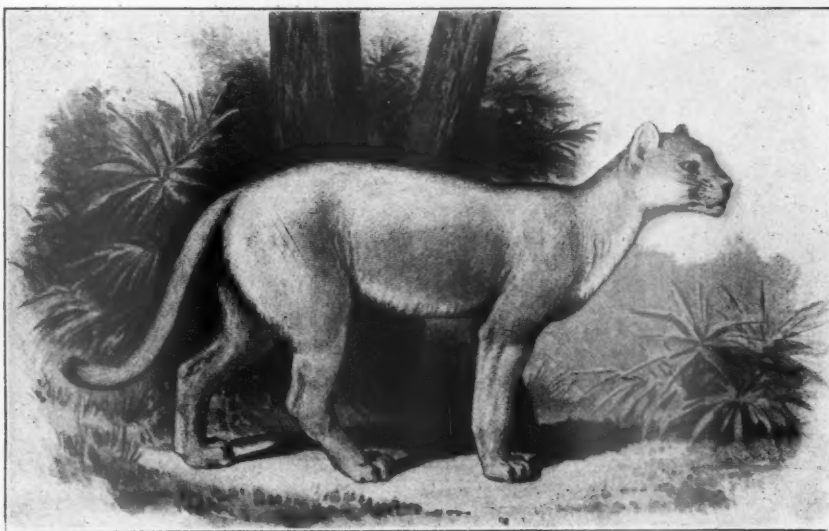
The jaguar will prey upon any animal from a monkey to a tapir, and in *The Living Animals of the World* we read that "The jaguar is as savage as it is formidable, but does not often attack men. Its headquarters are immense forests running from Central America to Southern Brazil; and as all great forests are little inhabited the jaguar is seldom encountered by white men. By the banks of the great rivers it is semi-aquatic; it swims and climbs with equal ease, and will attack animals on board boats anchored in the rivers. As there are few animals of great size in these forests, its great strength is not often seen exercised, as is that of the lion; but it is the personification of concentrated force

and its appearance is well worth studying from that point of view. The spots are larger and squarer than in the leopard, the head ponderous, the forearms and feet one mass of muscles, knotted under the velvet skin. On the Amazons it draws its food alike from the highest tree-tops and the river-bed; in the former it catches monkeys in the branches, fish in the shallows of the rivers, and scoops out turtles' eggs from the sandbanks. Humboldt, who visited these regions when the white population was scarce, declared that 4,000 jaguars were killed annually, and 2,000 skins exported from Buenos Ayres alone. It was clearly common on the Pampas in his day, and made as great havoc among the cattle and horses as it does today."

The Ocelot is a rarer animal in the fauna of this country than the jaguar—in any event, certainly as rare. In some localities, in Mexico and southward throughout South America, they are more or less abundant; but Southern Texas is the extreme limits of their northern range. In times both past and present travelers have published excellent accounts of this, perhaps, most beautiful of all existing cats. The rich and truly elegant markings of its coat almost pass the powers of description, and have never failed to excite the wonder and admiration of every one who has ever beheld them. Then the animal possesses all the grace and playfulness of

the more engaging representatives of the family to which it belongs.

As in the case of the jaguar it is largely nocturnal in habit, and lives in the forest districts, particularly where the timber skirts the borders of streams or bodies of fresh water. It preys upon different species of birds and mammals, and is the veriest terror of the entire monkey tribe. Like most of the *Felidae* it climbs trees with ease and agility, and when pushed by hunters and hounds it will soon resort to that means of escape.



THIS CAT IS FOUND ONLY IN THE WEST

The mountain lion or panther has not been seen in the mountains of New England for the past fifty years and is now rarely if ever seen east of the Mississippi river.

and its appearance is well worth studying from that point of view. The spots are larger and squarer than in the leopard, the head ponderous, the forearms and feet one mass of muscles, knotted under the velvet skin. On the Amazons it draws its food alike from the highest tree-tops and the river-bed; in the former it catches monkeys in the branches, fish in the shallows of the rivers, and scoops out turtles' eggs from the sandbanks. Humboldt, who visited these regions when the white population was scarce, declared that 4,000 jaguars were killed annually, and 2,000 skins exported from Buenos Ayres alone. It was clearly common on the Pampas in his day, and made as great havoc among the cattle and horses as it does today."

urialist, was most playful and affectionate, but when fed with flesh was less tractable. It jumped onto the back of a horse in the stable and tried to curl up on its hind-quarters. The horse threw the Ocelot off and kicked it, curing it of any disposition to ride. On seeing a horse the Ocelot always ran off to its kennel afterwards. When sent to England it caught hold of and threw down a child of four years old, whom it rolled about with its paws without hurting it."

We very frequently see this beautiful creature in menagerie collections.

Apart from the sub-specific forms of lynxes in this country—the existence of some of which is very questionable—we have, in the United States mammalian fauna, two distinct types of these animals, namely the Wild Cat—also called Bob Cat—Bay Lynx and Catamount, and the Canada Lynx or "Loup Cervier." Scientifically, the Wild Cat is classified by some zoologists as *Lynx rufus*, and by others as *Felis rufa*. Likewise, the Canadian Lynx is known both as *Lynx* and as *Felis canadensis*. There is also still a division of opinion whether or not our Canada Lynx and the Old World species (*Felis lynx*) are the same race, being but slightly modified by environment. Wherever we find them, however, either in the New World or in the Old,

When the kittens are captured alive they are not difficult to rear; it is said that they soon become as tame as house cats, and fond of their master, with whom they will play and romp with all the good temper of the best-natured tabby. A writer at hand says: "A tame Ocelot described by Wilson, the American nat-





SKULL OF THE DOMESTIC CAT

In a general way this gives the characteristics of the feline skull from lions to lynxes.

the habits of lynxes are everywhere much the same, varying only to some extent by their particular surroundings or as they have been gradually changed by the attitude of man toward them.

Throughout the State of Maine and the Northeast, where lynxes occur, the hunters, guides and a few Indians call them the Indian devils.

A writer says that the lynx or "loupervier" has always been considered a harmless, cowardly animal, unless cornered. He will, however, start the hair upward of the average man with his blood-curdling screeches. They will come within a few rods of a human being in day-time and snarl and spit like an angry house cat. Several years ago I had one keep me company one June evening for nearly a half mile on a lonely road till I reached a knoll where there were plenty of cobble stones, which I hurled with all the energy I possessed, and at that time I was in practice picking ball. After stopping two or three of the missiles my companion took to the woods, and then vented his wrath in squealing.

"I know of one instance where a family attacked a farmer's flock of sheep and killed about thirty, eight of which were found when alive with the udder entirely eaten out, which was the manner that all were attacked. This, with the robbing of hen roosts, is their chief trait of character while in civilization."

Some twenty or more years ago there was a lively discussion

in the sporting magazines of the day. The present writer took part in this when it came to describing the tracks made in the snow by a bob cat and by a lynx, that is in the differences they presented. Mr. Gill Ford also took a hand in this debate and in one of the articles he published he made comment in words to the effect: "Referring to Dr. Shufeldt's query regarding the visible difference between the tracks of the *Lynx rufus* and the *Lynx canadensis*, I will say that I have often heard guides and woodsmen say that a given track belonged to a loupervier and another track was made by a bob cat, explaining, when questioned, that the foot of the bob cat was more compact and distinct than that of the lynx. On closer examination they have told me that the loupervier had a quantity of long hair on the sides of its feet, which fell into soft snow when walking, making a blurred outline; the foot of the bob cat, having none of these filamentary appendages, made a clear impression. My own observation leads me to think the bob cat has a larger and stiffer growth of bristle-like hairs between its toes than its cousin, which may account for the fact that bob cats are often found in clearings and near human residences, while the lynx almost invariably keeps to the woods where the winter travel is easier to its feet.

"As a rule, we old farmers in Maine do not make any distinction between the two species, calling both animals bob cats. The French-Canadians are more observing and nicer in their definitions and term the canadensis species loupervier (deer wolf), and apply the name of chattecervier (deer cat) to the rufus species. Hunters and fur dealers who size up furs according to their money value, make a sharp distinction in prices, paying about \$2.50 for a good pelt from a canadensis, and turning up their noses in disgust when a rufus is mentioned.



THE LOUP CERVIER

This Canadian lynx is a northern form of the family, a sub-species of it being found in Alaska. The ancients had a belief that a lynx could see through solid substances, such as wood, hence the expression "lynx-eyed."

Hence it has come to pass that no bob cat or lynx rufus pelts are offered in the markets.

"From a varied, though not at all accurate, experience, extending over more years than I care to confess, I believe the loup-cervier—the fellow whose skin brings money—is gradually disappearing before the march of civilization. The skin will always bring some price, which is an inducement. As the animal is a confirmed habitue of the woods, it finds its area growing more restricted every year, and it must soon follow the caribou to practical extinction. Meantime, the sneaking, carrion-devouring bob cat is waxing fat and prospering in the neighborhood of man. Within the past ten years I have seen young bob kittens playing near a hay barn in a back field on two occasions—succeeding years, too—and on asking the men at work on the farm about the matter, I was told that the mother cat had her home under the barn. As the

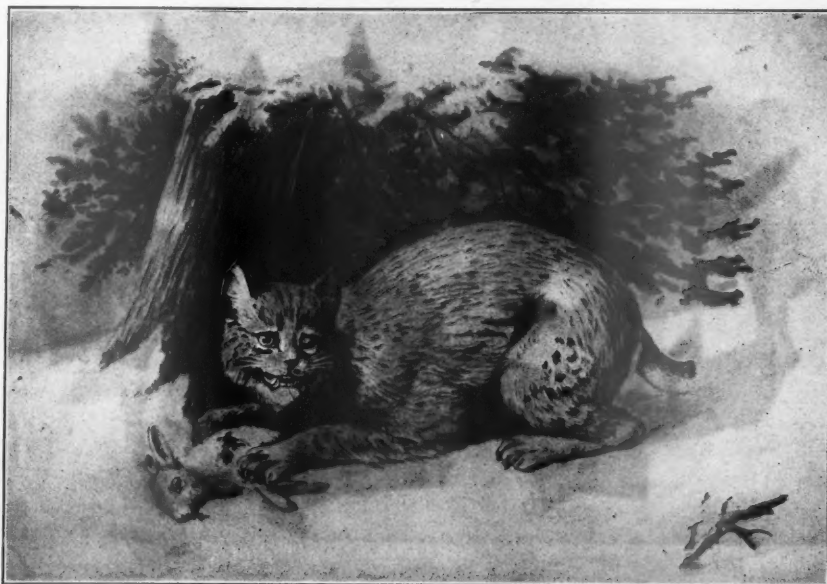
barn is not more than 20 rods away from a railroad where cars pass every hour in the day, and as it is a hundred rods from a noisy and active steam saw-mill, I infer that bob cats are not shy. Last summer, when a neighbor of mine went out in the morning to open his chicken pens, he saw a bob cat sneak from behind a pen and stand

at attention. A small terrier dog coming up at the time, the cat climbed a sapling birch and clung to the body of the tree until my neighbor walked a third of a mile to my home and borrowed a gun. On returning to his coops, the cat was still in the tree, and was killed with a charge of BB shot. In two instances I have known bob cats, when treed by dogs, to remain aloft until they were rested, and then come down and fight their way to freedom, killing two hounds in one of the conflicts.

"While bob cats are brave fighters when cornered and will disembowel a dog of double their weight with apparent ease, they are cowardly when met by a man, and will never show fight unless compelled to do so to save their lives or liberties. They are very swift of foot and capable of great endurance. Two years ago

this winter I found the head and fore-shoulders of a big red fox hidden away in the snow at the edge of some bushes. Wishing to know what had killed the fox—for the flesh had not had time to freeze—I turned the hounds loose and soon came up with a bob cat in a tree. Taking the back track from the place where I had found the dead fox, for there was a light snow on top of a light crust, I followed to a field a half mile away, and came upon a scene of a furious combat. The snow was spattered with tracks over an area of four or five acres, and near one side of the multitude of tracks was a great smooch in the snow, showing where the tragedy had taken place. For some rods around the dent in the snow were spatters and daubs of blood and tufts of hair. Of course, I cannot certify that the blood came from a fox, but I believe it did. As for the hair, that grew on a red fox beyond doubt. Until this discovery

I had not placed raw fox among the articles on the bill of fare of bob cats. My impression is that the average bob cat is a n uncleanly animal, and will eat most anything that comes to hand. I have known them to dig into heaps of dressing to make a breakfast on ancient slaughter house offal, when in a pasture fifty rods away were a score of nice



THE BOB CAT

As a matter of fact the Bob Cat is the wild cat or Bay Lynx of the naturalists. There are several species of it in this country and Col. Roosevelt left us some excellent accounts of them. They have a characteristic short, stubby tail.

spring lambs that could be had for the catching."

This article was written at Brewer, Maine; Mr. Ford appears to be a very good observer of animals, and intelligently describes what he has seen.

There are some very excellent stories and pictures, the latter being reproductions of photographs from life in Colonel Theodore Roosevelt's article in Scribner's Magazine (October and November, 1901).

There is much about the wild or bob cat to remind us of the common domesticated animal, especially in some of its habits. Their way of hunting their prey is typically feline, and if one has the opportunity of seeing them at such times, it will be noted that their whole action is identical. A wild cat is a fine mouser, and there is no question that they kill and eat a great many of the

smaller species of birds. As in the case of the domestic cat, they glory in the pleasure a catnip bed brings them, taking great delight in rolling in the odoriferous plants until every part of their pelt smells strongly of them. They will also chew the young green leaves and the blossoms.

As a rule, a wild cat does not go abroad much in the day time; but like all its tribe, it prefers to hunt during the early hours of evening or even before sunrise. They "lay off," so to speak, during the middle of the day, resorting to some rocky ledge or the big limb of a tree, and do not object to the warm rays of the sun if they chance to shine upon them. This species is not essentially a forest animal; they seem to very much prefer to live upon the hillsides, where the heavy timber has been cleared away and been replaced by a second growth and a tangle of brambles partially concealing loose rocks and fallen logs. Through such places the wild cat goes noiselessly about, ready at any instant to pounce upon a rabbit, a squirrel or game bird that chances its way. Sometimes two wild cats will be seen together, but far oftener only a single one. As in the case of all our *Felidae*, they occasionally give vent to a most unearthly caterwaul—a howl that it is difficult to believe an animal of its size could be capable of producing; and if any of its regular game be in close proximity they will be certain to betray their presence in their fright, whereupon the cat takes advantage of their terror, and either immediately pounces upon the poor, startled creatures, or else cautiously stalks to the point from whence the rustling or noise proceeded.

Wild cats generally have a hard time of it in the winter; but they keep about during the entire season, however cold it may be, in spite of the difficulty to get through deep snows and to surprise and capture their game. Often, up in some big tree, the wild cat will sit for an hour or more, patiently watching a squirrel-hole until its inmate makes its appearance, when, with a lightning stroke the deadly paw will take him in; then follows a pitiful and frightened squeal, and the wily hunter has secured his meal.

The female generally produces from two to four kittens at a birth, dropping them in a nest she has prepared of moss and leaves, in some hollow log or recess in the rocks of convenient size and sufficiently secluded. They do not make good pets, it is said, and any attempt to tame or domesticate the captured old ones is never successful.

This species often gets away with the farmer's domestic fowls of all kinds, even the turkeys; they are also fond of eggs, and capture fish when they can, the wild cat being no mean swimmer. A writer at hand says: "It will follow flocks of wild turkeys, and, seeing in what direction they are going, will proceed by a short path to their probable destination, where it crouches down, and when one of them comes within its reach it bounds upon it and seizes it."

Generally, this species is very shy, and will resort to many tricks to elude both dogs and hunters, when hunt-

ed by them; and if ever cornered by the former, a wild cat can put up a fine fight. Years ago I knew of a fine setter dog that was killed by one of these cats, the latter having her kittens to defend at the time.

We may next pass to a brief life history of the Canada Lynx, a larger and heavier animal than the wild cat, and averaging some two inches more in length, the latter exceeding 38 inches. Many of their habits are almost identical, however, such as their methods of hunting, their untamable ferocity and their breeding. Flower remarked that "Various fabulous properties are attributed to the animal, whatever it was, by the ancients, that of extraordinary powers of vision, including the ability to see through opaque substances, being one; whence the epithet "lynx-eyed," which has survived to the present day, although having no foundation in fact."

Stone and Cram, in their "American Animals" (p. 287), introduce this particular cat thus: "The Canada lynx is a savage, flat-faced beast, with enormous muscular legs and paws out of all proportion to the size of its lean body and absurd *retrouse* tail. Its soft fur of clouded gray is so blended with various shades of pale buff and tawny as to be extremely difficult to distinguish in any light or against almost any background; even in the cruel publicity of a barred cage it is still indistinct, and one might well fancy the cage empty at a little distance."

When not alarmed, the Canada lynx prowls about among the underbrush and brambles in a perfectly noiseless and stealthy manner, hunting any mammal or bird that it has the strength and agility to overpower. If frightened or pursued, however, its action is entirely different, for it will make off in elegant leaps or bounds; and if hunters and dogs push it too hard, it will rush up the first available tree it comes to for safety. One of them will fight a whole pack of hounds for its life, and, everything being equal, will sometimes come out victorious.

As in the case of the Bay lynx, this species is a fair swimmer, and it is remarkable how one of them can, with safety, jump at an unusual height from a tree, and make off upon coming in contact with *terra firma*; it is said they sometimes capture their prey in this fashion. Owing to the great spread of the feet of this animal, it is able to get over the snow at a wonderful rate, and a hare or a squirrel stands but little show with it for a short distance.

During the winter when game often becomes very scarce, the Canada lynxes suffer severely from hunger, and at such times they will eat anything that happens to be eatable at all or comes their way. Lean and ravenous they prowl through the woods in the bitter, wintry blasts and heavy snows of the northern regions, once in a while giving vent to one of their blood-curdling yells, ready for anything from a fight to a freeze, but heartily wishing all the time for the warmer days of spring to put in an appearance.

The female breeds once a year, and then brings forth only two or three kittens—pretty little fellows, but

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# FOREST RECREATION DEPARTMENT

ARTHUR H. CARHART, EDITOR

## THE UNWELCOME GUEST

A CERTAIN code of good social practice exists among all groups of out-door aristocracy. There is just as much good taste in the manner in which one may act in a party of campers as there is in how one may comport oneself at a dinner table. The high ranges of mountain systems have as exacting a system of how one should behave as has the best court of Europe. That system is not so elaborate and is nearer to true courtliness than is some of the pomp and show of a throne room, but infringement on good usage generally brings swift condemnation which is as complete and absolute as though the Lord High Chancellor had politely grasped your ear and lead you far from some kingly presence.

An illustration of how such infringement is greeted by people of the great woods or mountain lands will tell much. Ranger Earl Gilcrist (which of course is not his real name) and I had been tramping the timberline trails for three days in the hope of getting a deer during the brief open season. The night before we had slept in a delapidated prospector's cabin where the stove was in such bad condition that it was necessary to build a fire out of doors to cook on. The night before that had been spent at an altitude of 11,000 feet above the sea and

with a great fire roaring at our feet to keep away some of the chill of the October winds.

The days had been full of long hard hikes, of tense stalking of aspen thickets only to find them without game present and of climbing over ridges and along trails where few feet had passed before. On the day after the season closed, carrying a forty-pound pack each, we had climbed down from the high ridges and reached the base camp, a cabin, tired and disappointed at not bringing in a buck.

There had been two other men in the party, good fellows and city men. Instead of hitting the trails to the high country they had preferred to stay in the region near the cabin for there it was easier hunting and the chances of getting a deer were nearly as good as in the higher parks and timber.

When we came into the park where the cabin is located we could see that these other members of the party were gone. Earl evidently was thinking of something other than camp courtesy for he did not notice the potato peelings, tin cans and egg shells strewn on the ground in front of the cabin. Entering the cabin my gaze at once went to where a most serious breach of camp etiquette



TOURIST CAMPERS IN ONE OF THE NATIONAL FORESTS

There is often real pride evidenced in the camps of the old timer of the outdoors, and this fine, clean camp in a well-chosen spot marks the man who loves to camp and knows the ethics of camp life.



A DANDY PLACE FOR A MEAL WHEN "ON THE TRAIL"

Substantial tables or benches take no more material and little more effort to build than do the ramshackle kind. The next user will be benefitted too.

stood open to all eyes. Earl still dreamed and busied himself with getting some of his outfit together for the several miles that we still had to do with the packs on our backs. This done he sauntered over to the table that was side-board, work table, dining table and drying rack for washed dishes.

Then he saw what I had noted when first I looked inside the cabin. The breakfast dishes were not washed and the entire table was inexcusably dirty.

Ranger Earl exploded. There was a good lot he had to say about the situation and the men who had caused it that would not be good to print. There was no question what he thought of the act. He condemned it and it's perpetrators without equivocation.

In his milder moments he did say: "That settles it! Those fellows have lost a lot in my estimation. I had come to like both of them and thought they were real outdoor men, but this changes my mind. I'll never go on a trip with either again and I hope I never meet them in town. That grizzly hunt is off, too, and I hope they never come back to my district." And that was saying a great deal for those men had been good companions for several days and meetings in the city had been planned for the winter season and the first tracking snow was to have been the signal for the hunt of a cattle-killing grizzly that had roamed the sides of the mountains for many seasons.

The sad part of the whole incident is the fact that these men probably did not know that they were insulting the man of the hills when they left the cabin and dishes dirty. To them it was but a passing incident, to him it was as though he had been slapped in the face.

This case is not isolated. Time after time the traveling public as represented in the vacationists and tourists, well mannered enough in their own homes and in the

houses of friends, have heaped injury and almost insult on the heads of people who are ready to be their best friends if given any chance.

Would you enter a friend's house and help yourself to the use of his clothing and furniture or invite yourself to board there without being asked? It would have to be a very dear friend indeed who would overlook such a breach of manners. Yet the tourist traveling in a car invites himself into the front yard of some ranch, nonchalantly pitches his tent and helps himself to the wood the rancher has cut and piled for fuel during a hard winter. Would you have a kindly feeling for someone who would come into your doorway and cut up your fence posts for fuel to build a campfire? Some people do this very thing on farms near where they camp a night while touring and then express the greatest amazement because the farmer-owner gets angry. Would you invite J. Baxter Trudelsley and his family over into a friend's garden to eat watermelon and then toss the rinds

into the neatly graveled paths and flower beds? Travel any road in the West where tourists congregate and it will not take long to find a place where watermelon rinds or other camp refuse clutters up a parking along a road or creates a mess on some otherwise delightful picnic spot.

In all of the great family of outdoor and forest people



INSURING THE NEXT VISITOR A PLEASANT PROSPECT

One of the most common habits of the bad camper is to leave all wrappings around food, old newspapers, etc., on the picnic spot.

who constitute the family of American Forestry readers there are probably few if any thoughtless ones who overstep outdoor etiquette at any time. For where true love of nature is present in a person he will be a clean camper and a good sport on the trail or trip. But any of you may have friends and acquaintances who are not so well bred when under the sky. You may know of some one who steps over the line of propriety of the outdoors or there may be some time when you see another otherwise good citizen committing the petty crime of leaving a dirty camp. This article is the result of a long summer seeing this petty vandalism and unconscious violation of camp

and trail social customs and is directed to all people who go afield so if they do not violate any rules themselves they may become militant against the ones who are spoiling the opportunities for the real sportsman.

Not a month since a rancher was discussing the fact



A FINE, CLEAN CAMP ON THE EDGE OF THE RIVER

This is a close-up of a fisherman's camp near Windy Gap. A clean camp is a pleasant place to live and is not difficult to maintain.

that in a certain valley where trout abound in willow-shaded streams every farm has a sign on the gates and many fences telling people to keep out. Two years ago this valley welcomed all fishermen. They were guests. They came and did not act as guests but as petty conquerors and the farmers who really ruled their own farms then as now, today resist invasion.

If fishermen are barred from entering on these farms in pursuit of the hard-fighting rainbow it is their own fault. This rancher told of people who had come to his place and without asking leave camped on the front lawn and when leaving neglected to take with them sundry tin cans and papers which they had strewn over the grassy yard. Another party romped merrily in a hay field never thinking that in so doing they were causing a loss in hay and money to the farmer. Other campers had helped themselves to hay from stacks near the road to make beds. Each act in itself may have been thoughtless on the part of the actor, but the aggregate of all has caused these farmers of the valley to despise tourist visitors that two years ago were welcomed. So now signs on gate and fence warn these visitors against trespassing.

These acts enumerated are some of the more flagrant and one will readily think that any person with any good grace at all would not wilfully commit them. But they have all happened in this one small valley and the tourist has worn out his welcome.

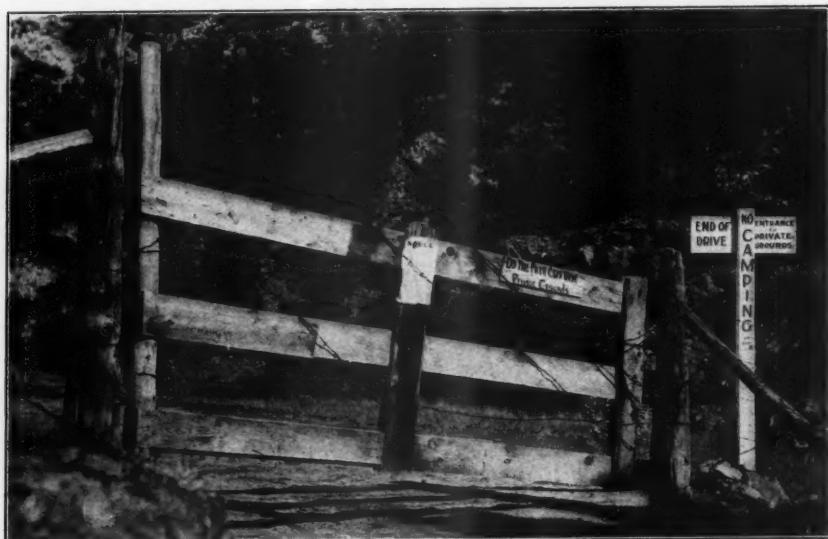
Did you ever see a person go through a gate and leave it open? A small thing in itself to shut that gate when passing through. I am sure you have noticed some one do this little act or you may be guilty yourself. Maybe the only time you ever committed this breach of good outdoor practice by leaving a gate open it took the



A STOP FOR LUNCH

Being a good camper is easy if one thinks of the other fellow. This visitor will leave a clean camp, and the fellow before him thought of the next man when he carefully laid aside the tepee poles seen in the background.





THE LATCH-STRING IS NOT OUT TO THE TOURIST HERE

This is a case where the owner is apparently unfriendly to campers—indicated by the two signs and the long notice posted on the padlocked gate. Such a situation often exists as a result of the continued carelessness of campers, who might otherwise be made most welcome.

owner of the place a half a day to round up his stock. Or it may be that he lost a valuable horse because of it. Now, soberly speaking, is such an act worthy of anyone who loves the outdoors?

Do you or your neighbor picnic in the woods? Everyone loves to eat a meal in a cozy little park-like space in the timber. But did you or your neighbor leave a clean camp? Well, that is another question. Often, very often, a picnic party using a picnic grounds wears it out with the one visitation. Cans, string, egg shells, banana peelings and paper plates litter the whole outlook and one who comes later finds that his predecessor has dissipated the beauty which beckoned to stop and there lunch.

The jitney tourist is not the single malefactor. Men who drive high-powered cars often show the most despicable traits when trampling on the courtesy of the outdoors. By a campfire that crackled far in the depths of a western forest three men talked of another man of their set who was not there and they breathed fervent prayer that he would not come for he was unwelcome.

One of these men came of a family of New York financiers and his name is a power

in the money market. A second had made several fortunes in oil and one or two in steel. The third had hunted lion in Africa and invaded Bolsheviki Russia with the American Red Cross. His name is known internationally as that of an experienced explorer and hunter. Many campfire tales were told of hunts and hunting, but never a night went by when these men, leaders in their own industries and in sport and then at the campfire, a part of the group of good fellows who may be found in many a camp, did not softly or stridently condemn the absent one who was of their clubs, society and business planes, but was not a gentleman out of doors.

There is a real serious phase to this problem. It affects everyone who travels in the open country. Carelessness on the part of a few affects all for the local resident does not discriminate between the classes of traveler-visitor. They are all tourists and if he has become convinced that all tourists are bad through the acts of some petty vandal it will take many associations with the gentle folk of the road to change his mind. He is not going to risk one act of wilful vandalism in order that he may be host of many people who will be good guests.



REFUSE LEFT BY CARELESS CAMPERS

Once a cozy little nook, near a picnic spot, the most enthusiastic optimist could not call it pleasing now. Such a sight is as distressing to a good camper as a littered backyard to a good householder.

Two years ago the valley where, in many streams and pools lurked the rainbow, welcomed tourist visitors and the ranches were not posted. Today there is not a farm left where the fisherman is welcome. Not all committed depredations. The percent is very small. And yet the farmer posts his land to protect himself from those few who become rowdies when in the open, although they may be very models of precise social practice in their own homes and homes of friends.

There seems to be no element of pride in being a good picnicker so far as some people are concerned. If they can get away with it they will leave camp sites filthy beyond description. Even the most refined people do this and are often the worst violators. The question naturally comes sometimes, is culture only a veneer or does the

wilds for the first time that leaves his camp in filthy condition. It is the townsman going afield in his flivver who tramps the hay in the meadow and leaves gates open where valuable stock may be lost and time spent in hunting strayed cattle follows.

And hundreds of thousands and millions of these people who until recently have never visited a place out of the sound of a trolley are now annually taking entire vacations on the road gypsy fashion but with a car instead of a horse-drawn wagon. If these people are to be welcome they must learn the etiquette of the camp and the road. If the fields are to be open to people coming to fish for trout every member of the tourist class, of every station of the brotherhood of the highway, must observe simple customs established as the social law of



A GOOD EXAMPLE OF AN ALMOST IRREPRESSIBLE DESIRE OF THE AVERAGE TOURIST

One petty vandal with which the Forest Service has to deal is the fellow who insists that the world know he has passed that way. He will scribble his name and often his place of abode on any sign large enough to take it.

refinement of the drawing room not fit the picnic places? Is there the same basic reason for good manners in the field there is in the club or home or does the out of doors lack some refining influence that is possessed by man-made institutions?

No, because there exists today a code of conduct in the woods. To those who have lived there it is an open book. It is as exact as any social usage of the society groups found in towns and cities. Fundamentally the golden rule is the basis of all social law of the hills. Inherent gentle breeding will take one far in the company of the woods people and of those who ride the high range or with the companions who may be in the party. It is the person new to the outdoors who violates the simple rules of good conduct in the open. It is the city man invading the the plains and hills.

The sorriest feature is not in the righteous ire of the one sinned against towards thoughtless novice who oversteps due bounds but the reaction of the man of the hills against the whole class of tourists. Self protection dictates that this newcomer to the family of the outdoor people be taught the code of the fraternity.

The code exists. It is simple but it is strict. Simple inherent graciousness will carry one in the respect of all outdoor people until the code is learned and the golden rule is a safe test to apply to any act that may be done or not done which will affect those people with whom you come in contact on the highway, in the field or in camp.

All users of the outdoors are today on trial. They have been wholly condemned by many who have suffered

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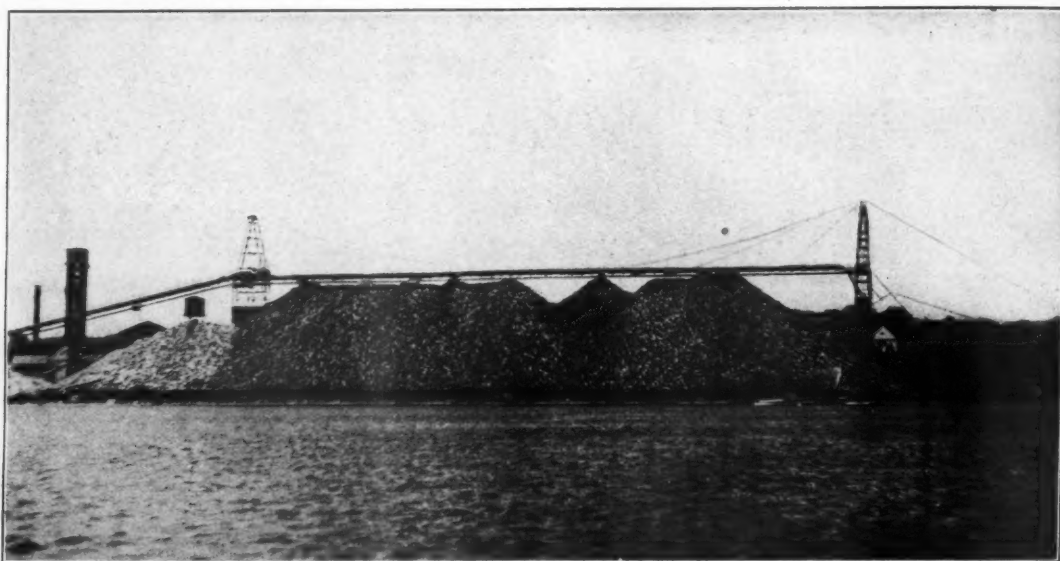
## PHILANTHROPY OR EFFICIENCY

BY ARTHUR NEWTON PACK

ALL too often forestry is regarded solely as a philanthropic scheme which begins and ends with planting trees, an appeal to our sentiment which permits us to write down our contributions in our account books or our consciences with a considerable feeling of moral satisfaction. Unfortunately this impression is shared even by some of the business heads of our lumber and wood-using industries, and as it is undoubtedly true that a good many thoroughly impractical ideas have been given out under the name of forestry, perhaps the business man, whose creed must necessarily be based on Results, is not wholly to blame for his attitude. All the talk of the newspapers and periodicals of the country about a timber shortage is not likely to influence the lumberman who has

Practical forestry neither begins nor ends with any such attitude; it is essentially the efficiency engineering of the wood-using industries, and until both foresters and managers fully appreciate this viewpoint there can be little progress in the industrial application of forestry principles.

Some of the largest newsprint manufacturing concerns in Canada are now pioneering in the practical application of forest engineering. It already seems likely that several others will follow the new lead. There will be some who say that it is a mistake or even a heresy to confuse forest engineering with forestry, because forest engineering is essentially the application of engineering study to the problems of cutting, log-hauling, and delivery to the mill,



NEWSPAPERS ARE MADE FROM THIS

Piles of pulpwood at a pulp mill ready to go to the paper mill and be made into great rolls of newsprint of which we use two million tons a year in our newspapers.

in sight for his own mill a supply of timber which he deems sufficient to pay a fair profit and amortize his mill and investment, unless he realizes that the application of forestry methods will not so greatly diminish that earning power upon which he must count, that the future saving will not be worth while. If he smiles at the talk of scientific cutting and treating timber as a successively maturing crop, it is only because he can see nothing but the expense of adopting the new methods.

Now that the great wood-using industries everywhere, and particularly the pulp and paper companies, are hiring foresters and building nurseries for raising tree seedlings, he may find it wise not to appear less progressive; but a forestry department organized without a definite or practical policy is from the beginning classed as a purely philanthropic side line, and as such is forever handicapped.

and they believe it is simply scientific forest destruction. The more modern viewpoint, which emanates from a group of American and Canadian foresters, is that the practical forester is so much the more able to handle his special problems of reproduction of timber, if he understands its present as well as its future connection with the dollars and cents of business. These men have studied the woods as actual members of the logging crews, seen at first hand the shortcomings of obsolete systems, and by the demonstration of their ability to show where real economies can be introduced, are winning the confidence of their directors to the broader application of forest conservation. They have determined to stamp out the old philanthropy idea.

In eastern Canada, Maine, and part of New Hampshire and New York, pulp wood is brought to the mills



by much the same methods of winter cutting and spring driving of the rivers as was made famous in Stewart Edward White's stories of the old Michigan days. The company itself operates a certain number of camps under its direct management and control, but usually a considerable quantity of the timber is "contracted". While it was generally realized that the contract system resulted in only the best timber being taken and the remainder being left in scattered bunches which would not permit of a second cut except at prohibitive cost, it has remained for the new type of forest engineer to demonstrate the really awful and destructive waste therefrom. It is the forest engineer who has now produced figures to show that pre-planning and careful preliminary reconnaissance and mapping, even at considerable expense, will not only extend the life of the operation but also bring logs to the mill at a less cost per cord.

While old school logging bosses used to laugh at forestry ideas, it is now the forestry department, made up of a personnel of forest engineers, which, for these pioneering companies above mentioned, becomes the planning and control department for the woods operations. At the beginning of the season the chief forester is in conference informed as to just how many cords of wood and of what proportionate species will be required for the coming year. With the aid of more complete maps than were ever before thought necessary, some of them made perhaps with the aid of aerial photography, the forestry department selects the areas to be cut. Experienced engineers are sent to blaze out the roads which will have to be built, and locate the camp sites. Then when the cutting begins a regular inspection is carried on to see that company camps and contractors alike abide by the directions given. Progress reports, hitherto almost un-

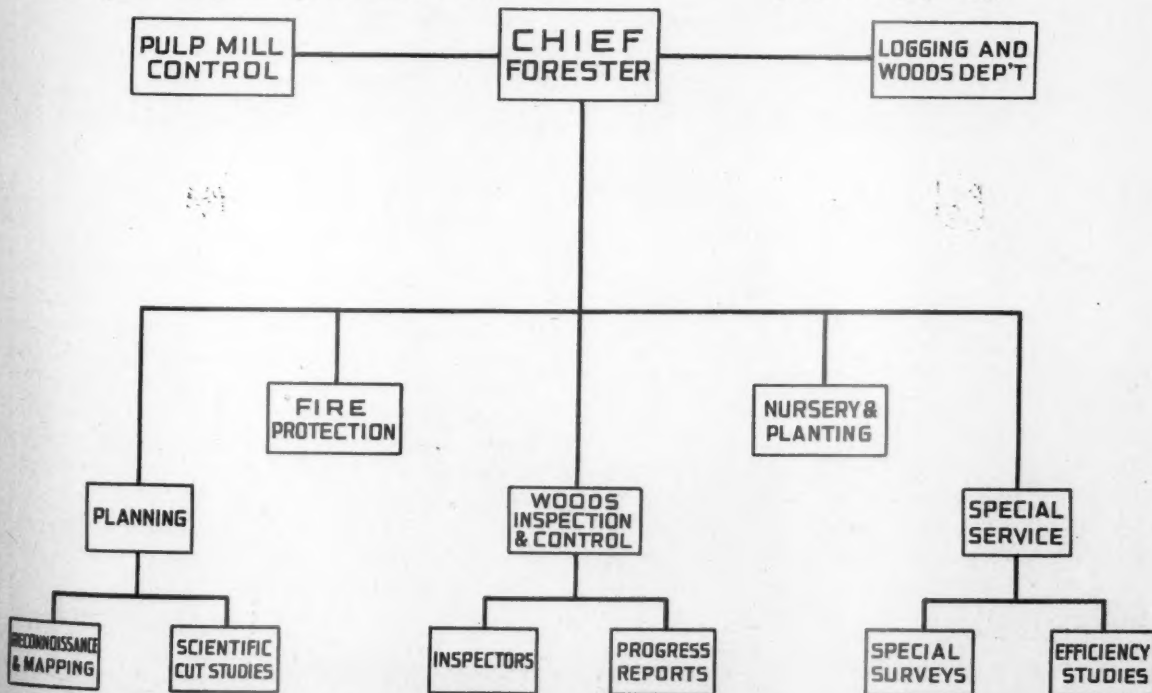
known in the logging industry, keep the mill management informed as to the expectancy of raw material. Meanwhile a separate branch of the forestry department is carrying on special surveys for bridge or dam sites, making time studies of towing operations to determine fuel and labor costs per unit of production, or conducting experiments with some new equipment. Cost systems have been little applied to woods operations. Some of these foresters even hope to demonstrate that such study will prove quite as valuable to a large scale logging operation as to a cash-register or automobile manufacturer.

In all this fire protection will not be forgotten. The closer touch between forester and woods operations alone should make such protection more easy of attainment. Nor will the operation of a nursery be made less valuable, for the forestry department with its finger on the pulse of the whole woods operation can better lay out areas to be replanted.

Economy in operation is true conservation. It is for the forester as forest engineer to show real economies, for then with faith in his practical abilities and through the actual savings thus obtained, can be made those very necessary experiments in scientific cutting for natural reproduction which may in time here in America, as well as in Europe, prove the real basis of a perpetual timber supply. There lies the crux of the whole problem and the justification of the forester as forest engineer.

The new forestry and engineering department is certainly in a far better practical position for carrying on experiments in selective or strip cutting, than as a supplementary philanthropic hanger-on. And experimentation is what we need, for our Canadian and American

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SUGGESTION FOR ORGANIZATION OF INDUSTRIAL FORESTRY DEPARTMENT

# THE TREE

By GRACE CLEMENTINE HOWES

This is the tree--from the earth's warm  
breast it grew,  
Called, called of God.  
Piercing the loam, a frail, twin-leaved stem,  
it drew  
Strength from the sod,  
And manna from wilderness sunlight and  
dew  
In ways untrod.

God wrought it wide branches, tuned to  
wind-music,  
Like a harp's strings,  
Boughs fashioned for beauty, for bird-song  
and nestings,  
Upspringing like wings,  
And wove it a robe and a crown of green  
leaves  
For its burgeonings.

O sun-tipped wings that fan the sweet air  
all day!  
Wings that aspire,  
Straining your earth-roots, lifting you  
heaven-ward  
Higher and higher,  
Curved as in prayer, upraised on the even-  
ing sky,  
Star-edged with fire.

O branches that tossed in the valleys and  
hills  
Over league-long miles!  
Now, here, like peace-folded wings you  
arch high o'er  
The cathedral aisles,  
Or there, curving tenderly, cradle the babe  
Where he dreams and smiles.

You are dumb, silent witnesses shelter-  
ing  
Many a home,  
And you bear the white sails of the seven  
seas  
Through the flying foam,  
Dipping sunward where strange, distant  
havens lift  
Palm-leaf and dome.

As ships you build worlds--'twas you were  
that great ship  
Of Destiny,  
That bore to new lands, our fore-fathers,  
Pilgrims  
Of Liberty,  
On, straining on toward the goal invincibly  
Through a strange sea.

You were their shelter, their defense and  
their strength,  
Thus you became  
The live, fragrant sacrifice kindling a  
nation's  
First hearth-flame,  
And wrote on our history's scroll, and our  
hearts,  
Your deathless name.

Since when, you are sacred, symbol of great  
souls,  
Souls that aspire;  
Your wings sweep the sky o'er the dying  
day's  
Vast funeral pyre,  
Lifting, reaching up from the last-red  
embers  
Your pure desire.

## EDITORIAL DEPARTMENT

### A NEW MENACE TO FORESTRY

BY HENRY S. GRAVES, FORMER CHIEF FORESTER

THE foresters of the country and the friends of the forestry movement are watching with interest and anxiety the proposals for the reorganization of the Government departments, especially as these proposals relate to the Forest Service. This is not merely a matter of academic interest, for the manner in which the work of the Government is organized and conducted will have a far-reaching influence on the policies applied in the National Forests and on the effectiveness of the general forestry movement as led by the Government. A change in the form of the federal organization, and especially one that dismembers the Forest Service or divides the responsibility of its work, will inevitably impair the effectiveness of the national undertaking and perhaps set back the progress of forestry throughout the country for many years. Certainly any change that would result in altering the present broad objectives, policy, and point of view in forestry would be a serious blow to the whole movement.

The federal forest work is now centralized in a single bureau, the Forest Service. This organization is charged with the administration of the National Forests, with leadership in bringing about forestry in the States and on the property of private timberland owners and farmers, with research in forestry as it pertains to the problems of production and utilization of timber, and with general educational work in forestry. Excellent progress has been made in forestry for two reasons; first, because the functions of the Government have been centralized in one responsible organization, and second, because the Forest Service is now in a Department specially qualified on account of its natural functions and point of view, to supervise its work. There is now distinct danger that the Forest Service will be taken from the Department of Agriculture and placed where by nature of things a different point of view exists; and there is danger also of actual dismemberment of the Forest Service and of dividing the responsibility of the federal work in forestry among two or more organizations. The possibility of such action is of vital concern to every person interested in the progress of the forestry movement; it is of personal concern to the lumbermen, stock men, ranchers, farmers, miners and others who live adjacent to the National Forests and whose permanent welfare is affected by the manner in which the public resources are administered.

The Administration has not disclosed its definite plans. Many hints, however, have found their way into the press that suggest that a radical change affecting the Forest Service is in contemplation. It will be recalled that for several years the Engineering Council, representing the organized engineers of the country, has been advocating the creation of a Department of Public Works. This proposal has many admirable features, although the specific suggestions have, in my opinion, certain defects. Among other things the proposal includes the transfer of the Forest Service to the new department, under the allegation that its work is primarily of an engineering character.

Recent articles in the press indicate that this plan has the support of the National Budget Committee of New York and of various other agencies interested in Governmental reorganization; and the newspapers also indicate that some plan of this sort is being considered by the Administration. The theory appears to be that the Department of the Interior, whether under its present name or that of Public Works, should have two main functions, first, the work of an engineering character that might be included under the general term Public Works, and second, the administration of the public domain. Apparently the idea is to absorb the Forest Service in this new Department, with its administrative functions on the National Forests classed partly as engineering and partly as public domain. In case of such a transfer, the functions of the Forest Service would probably be divided among several bureaus rather than be centralized as at present. While the published proposals do not indicate what would be done with the technological and industrial research in forest products now conducted at the Madison Laboratory, rumor in Washington has it that this would be severed from the Forest Service entirely and transferred to the Department of Commerce.

\* \* \*

Formerly the forestry work of the Government was divided. The Agricultural Department handled the problems of forest production; the Interior Department had the administration of the public forests. The plan was a failure. The public forests were not administered efficiently, and the efforts to utilize the technical corps of foresters in the Agricultural Department in cooperation with the Interior Department broke down. It was only when the handling of the public forests was made a function of the Agricultural Department, as part of the broad responsibilities of the Government in forestry, that efficiency was secured and a forward looking policy developed. Then the handling of the National Forests was made successful and the new policy has been cordially accepted by the people of the West, where most of the public forests are located.

The responsibilities of the Federal Government in forestry are not merely confined to the administration of the National Forests. In fact, these public properties comprise only about twenty-three per cent of the forests of the country. The functions of the Forest Service include the leadership in bringing about the proper handling of all of the forests of the country. In accomplishing this the National Forests must play a large part, both through the example of good forest administration and through cooperation with States and private owners by the organization which is actually and successfully applying forestry on the public property.

Among the reasons why the Forest Service should remain in the Department of Agriculture are the following:

1. The task of forestry is so intimately related to the agricultural development of the country that it cannot be successfully worked out as an undertaking separate from



agriculture. In the long run, fully sixty per cent of the forests of the country will be in relatively small holdings and must be developed in correlation with the intermingled farm lands. Many of these small holdings will be owned by farmers and be managed as a part of their farm enterprise. The Government work that has to do with this class of lands will have to be administered by the Department of Agriculture. This Department would require a corps of men and an efficient organization of its own, even if there were a separate bureau of forestry in another department. We would immediately have the sort of duplication that is today so seriously criticized, and we would have a much less efficient handling of the work than would be the case under a single organization responsible for all of the forest work of the Government.

\* \* \*

2. While the National Forests render a national service through the protection of interstate rivers and through the conservation of a supply of timber for the future, the first benefits of this public enterprise are to the communities, industries and individuals located in their vicinity. In point of numbers the majority of the users of the National Forests are small ranch men. The most conspicuous results that have been obtained from the National Forests have been through their influence in stabilizing and building up on a permanent basis hundreds of rural communities within and near them. Their influence in strengthening a prosperous rural civilization cannot be overestimated. The fact that the Forest Service has had this conception, which is also that of the Department of Agriculture in its other work, explains the success of the undertaking.

\* \* \*

3. The two greatest tasks in the administration of the National Forests are first, the production and use of trees, and second, the production and use of forage. Both of these problems require technical administration, that is, an administration based upon the knowledge of plant life and growth. The primary service of the Forests is through the trees upon these public properties. However, there is a large amount of excellent range which is being utilized by live stock without injury to the forest growth. A system of grazing administration has been built up that is based on a technical knowledge of forage production and conservation. This in itself is an agricultural problem; it could not have been solved except through agricultural experts. The handling of the National Forests is not a function similar to that of the administration of the unreserved public lands. The Administration of the public domain has been throughout our history primarily one of disposing of lands to private individuals through the general land laws. It has not been a problem of utilizing lands held under permanent ownership by the Government and applying to them the principles of crop production, as is being done with the timber and grass in the National Forests.

Nor is the administration of the National Forests primarily an engineering enterprise. There are many engineering features in the handling of any land project.

The major work of building roads is now handled by the Bureau of Public Roads and the Forest Service has not built up an independent corps of engineers. Under the widest interpretation not over twenty-two per cent of the appropriations for the Forest Service are spent for engineering work. If we leave out of consideration the money for road building which is expended on behalf of the Forest Service by another bureau, the sort of engineering work conducted on the public forests is analogous to that of any organized agricultural enterprise.

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4. It has been suggested that the Forest Service should be in the Department of the Interior, because of the large number of questions of land titles and similar matters in which the General Land Office has a part. In point of fact, there is no more need that the Forest Service should be in the same Department as the General Land Office than that it should be in the Department of Justice where constantly there are many cases of litigation which must be handled by the Attorney General. On the other hand, it is of vital importance for the Forest Service to be in close relationship with the Bureau of Animal Industry in connection with problems of live stock; with the Bureau of Plant Industry, which has experts studying the diseases of trees, questions of plants poisonous to live stock, problems of forage production, etc.; with the Bureau of Entomology, whose experts are studying injurious insects and methods of combating them; with the Bureau of Biological Survey, which cooperates with the Forest Service in protecting the wild life in the forests, in exterminating prairie dogs and other animals destructive of useful plant life, and in the reduction of wolves, coyotes and other predatory animals that prey on live stock and useful game; and with the Bureau of Public Roads, whose engineers supervise the construction of the many road projects in the National Forests. In a sense the whole organization of the Department of Agriculture is participating in the work of the administration of the National Forests. A great loss would be suffered by interrupting such a successful organization of effort.

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5. In its work of extending the application of forestry to private lands the Forest Service works in part through direct educational means and in part through cooperation with agencies of the different States and with private owners. Where the work touches agricultural communities the Forest Service utilizes to a large extent the existing cooperative organization of the Department of Agriculture. The transfer of the Forest Service to another Department would enormously complicate such cooperation, if it did not practically put a stop to it.

\* \* \*

6. Finally the research work in forestry is very closely related to other research in the Department of Agriculture. The studies in tree growth, forest production, natural reproduction, tree planting, and the like are studies of plant life. This is a distinctive field of the Department of Agriculture. The same is true also of the technological studies now conducted at the Madison Laboratory.

The wood technologist studies how to utilize wood more efficiently. His problem is not one merely of testing standard materials. The qualities of wood are very closely related to the manner in which the trees grow, to their age, their location, their varietal differences, etc. The methods of handling wood, the changes in grades, the utilization of lower grades in place of the higher classes that are becoming exhausted, are problems that cannot be separated from the forest itself. And the same thing is true of those industrial studies that do not pertain primarily to statistics of prices, stocks, and distribution of lumber. The Forest Service has been successful in these studies because of its knowledge of the forest. They are essential not only in the handling of the public forests, but also in the work of extending the practice of forestry to privately owned land. They bear the same relation to the application of forestry as the studies being made by the Department in farm economics bear to the building up of agriculture. The separation of the Madison Laboratory from the Forest Service would be as disastrous as separating from it the silvicultural investigations.

\* \* \*

The foregoing are specific reasons, and they might be expanded indefinitely, against the proposed transfer. Underlying the whole matter, however, is the question of the point of view and of the objectives in handling the forest problems of the Government. In each department of the Government there is a characteristic point of view in regard to public problems. Thus in the Department of Commerce the chief interest will always be centered on commerce and industry. If that department should take over the Forest Service there would be a tendency to approach the forest problems from the standpoint of lumber production and of other industrial questions, rather than from that of constructive land utilization and the building up of our rural life. It is not a derogation of the War Department to say that if the Forest Service were under its supervision a military point of view might dominate the policies of handling the National Forests in the long run. The same principle holds good for the Interior Department. Its attitude towards the public lands is the result of a century of disposing of the public domain. It is well known that this department has not been in sympathy with the enlargement of the National Forests or with many of the policies of the Forest Service. It has favored a wider application to the public forests of the old principles of handling the public domain. Certainly the expressed attitude of the present Secretary of the Interior in many matters relating to the resources of the National Forests is far from reassuring to the public, in considering any plan by which these properties might be placed in his charge.

The suggestion is now made that under the proposed reorganization the point of view of the engineer would be dominant in the Interior Department. What is essential in forestry is the point of view of the forester, the agricultural economist, and rural organizer, and not of the engineer. Again it is a question of point of view as well as

of technical knowledge. In this respect the problem of forestry may be as foreign to the experience of the engineer as of the public-land lawyer. Even if technical questions are left out of consideration, the danger of introducing a new point of view in land classification of the public forests, in the grazing administration, and perhaps in the character of the personnel of the Service, would be very great.

The Forest Service has succeeded after many years in establishing stable and consistent policies and methods in handling the National Forests. These are understood and accepted by the great mass of people using the Forests. Any radical change in the organization of the Service would inevitably mean changes of policy. It would reopen many vexatious questions that have been satisfactorily settled. It would have a serious effect on the success and permanence of the whole National Forest Policy. This in turn would have its effect on the forestry movement throughout the country.

\* \* \*

The service of public forests to the Nation depends on keeping their administration entirely free from politics. The Forest Service is a large organization and its members are scattered widely throughout the country. Individual forest officers have large responsibilities in handling the various resources on the Forests, in the disposal of timber, in the employment of labor for various purposes, and in the allotment of privileges for the grazing of live stock, for the free use of timber and for other purposes. It is essential that the forest officers be men of integrity; they must be men wholly uninfluenced by any considerations other than impartial justice and a spirit of public service. It is easy to conceive that a large organization of men whose work affects so many people in a material way could have a powerful political influence, if the element of politics were injected into the administration. It is perfectly clear that if politics were a factor at all, there would be a grave danger of favoritism, of the appointment of inefficient men, and a let down in standards of work. The result would inevitably be the undermining of public confidence and ultimately the break down of the whole system. Fortunately the Department of Agriculture is free from political considerations in its personnel and work. When the public forests were under the Interior Department the entire personnel was political and the administration notoriously inefficient. Theoretically the question of politics ought not to be a consideration in the present problem. Unfortunately the question counts in a very big way and it has an important bearing upon the proposed transfer of the Forest Service from the Department of Agriculture.

It is imperative from the standpoint of the success of the forestry movement and the service of the National Forests to the country that the Forest Service be retained in the Department of Agriculture where it is free from politics, where it has already won wide public confidence, and where it is in a position to go forward with stable policies that have been approved by the country at large.

## TREES WITH BRIGHT AUTUMN FOLIAGE

BY F. L. MULFORD

THE autumn landscape may be made as attractive as the spring landscape if the plantings are made with this object in view. About the home attention should be given to planting for this season along with that for other seasons, as the average home is occupied for twelve months in the year. Of course, there are homes that are deserted for long periods and the planting about these should be such that they are most attractive at the season when they are occupied. With other homes there may be special reasons why the plantings for certain seasons should be emphasized at the expense of those for other times. For example the surroundings of the home of a college president or of a college professor might appropriately be planted to be most attractive in the spring especially just before Commencement, so that it might be used in connection with social functions at that season of the year, and specially attractive features for other seasons might be sacrificed to this end. While

it might be appropriate to devote the president's grounds or even a small portion of the campus almost exclusively to a spring garden, on the other hand a college or boarding school campus should be so planted that the best possible effect should be produced at the time of the opening of the college and for the succeeding weeks even at the expense of the spring effect. With the average school, planting for summer effect may be ignored, while for a summer home or in a summer resort special effort for attractive conditions at this season would be most appropriate.

Because flowers are scarce in the fall many people have not thought of the possibility of making their home surroundings especially attractive at this season of the year. It can be accomplished however, even on quite small places by using appropriate plants. People who can afford to travel to and fro at will, often go to the mountains to enjoy the brilliant coloring of the autumn



SUGAR MAPLES

These specimens have grown in a forest so their trunks are very much longer than they would have been had they spent their life in the open, but their fall color will be just as bright a yellow and they will be as attractive in the landscape.



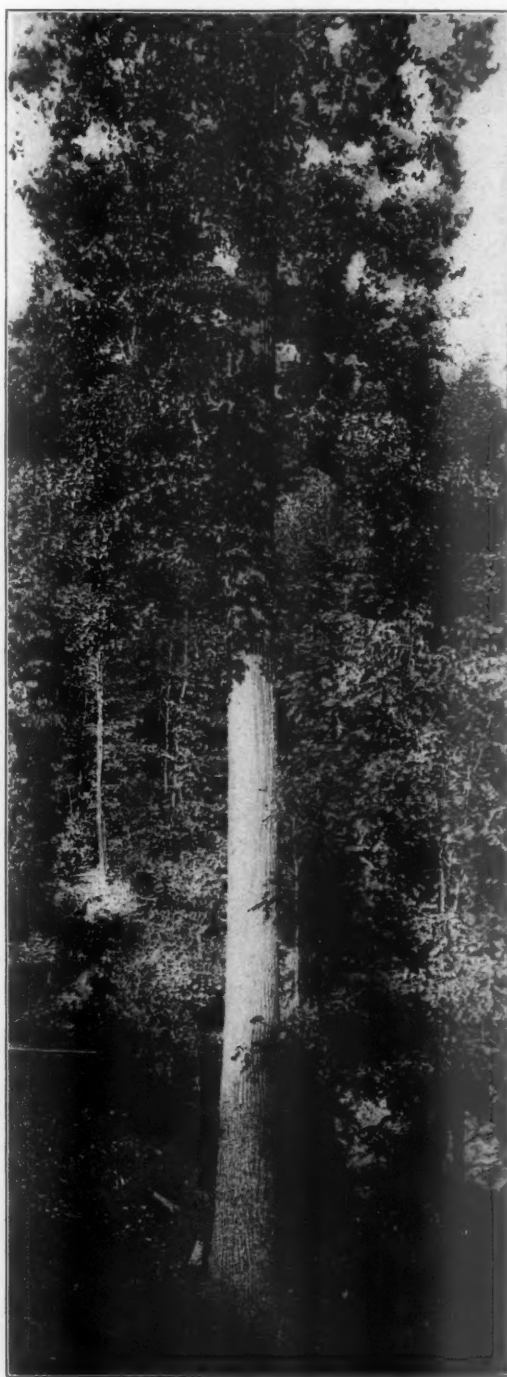
foliage. These same brilliant colors may be brought into the home grounds with wonderful results. Of course on the small place there cannot be the same magnificent mass effect that may be enjoyed where whole mountains of color may be seen at once. On the other hand, the details are lost in the distance in the case of the mountains but on the home grounds they may be observed and enjoyed. In many of nature's works what may be enjoyed at a distance in bold masses may also be enjoyed close at hand where the exquisite detail may be appreciated. Man may construct either for close or distant view, but seldom succeeds in combining in the same object pleasing results from both standpoints. Fortunately the plants that give the great masses of autumn color in the forest are also beautiful when viewed as individuals close at hand.

The contrast in the greens of the American landscape as seen in spring and summer is apt to be somewhat dimmed in the fall as the result of the dry weather prevalent in so many sections of the country at this season of the year. This dulling of the general effect may make the later changing of color to brilliant reds and yellows all the more noticeable. It is upon these foliage changes that the planter must largely depend for the late autumn effects. Earlier in the season flowers can be utilized. Some of them are golden rods and asters with iron-weed, Joe-pye-weed and rudbeckias, including the showy golden glow; while in shrubs there are the fading trusses of the hydrangeas, especially the hardy garden hydrangea (*Hydrangea paniculata grandiflora*) and the flowers and seed of the climbing Japanese clematis (*Clematis paniculata*). At this season, too, many of the showy berries are beginning

to color well, but they do not reveal their most striking beauty until the foliage is gone. It is after the leaves have dropped that the beauty of the berries and of bright-colored stems are seen to best advantage and not until after the snow comes that they are most appreciated.

In winter, too, evergreens add a welcome bit of color if used in moderation, the coniferous evergreens in the north like the pines, spruces and cedars, or broad-leaved evergreens in the south, like the evergreen magnolia, the hollies, and the cherry laurel. But it is not alone in winter that the dark green foliage of these trees is of advantage in the landscape, for they greatly enhance the attractiveness of the changing foliage of maples and oaks on the approach of cold weather. Bright red or yellow leaves become much more attractive if seen in contrast with the dark green foliage of evergreens.

One of the first of the good shade trees to show bright color in the foliage is the red maple (*Acer rubrum*) also sometimes called swamp maple. This becomes a rather large tree of somewhat irregular shape when mature, bearing smallish leaves of the typical maple shape and of a rather light green. Small branches or whole limbs often begin to turn a beautiful red and yellow as early as August. These splotches of color often remain for weeks on otherwise green trees. Sometimes it is a few scarlet leaves, again some yellow ones, but more often red with more or less admixture of yellow. As the season advances the whole tree assumes these bright colors, the different branches assuming different shades and combinations. It drops its leaves earlier than many other trees, but it is one of our handsomest. In addition



A FOREST CAPABLE OF BRILLIANT COLOR EFFECTS ON THE APPROACH OF WINTER

In such a forest the red and yellow of the red maple on the lower reaches may be supplemented higher up by the red of oaks interspersed with sugar maples and tulip trees like the fine specimen in the foreground.

to its striking fall appearance, in early spring it assumes a bright red from the opening flowers and leaves and continues an object of special attraction for nearly or quite three weeks, until the keys or seeds are ripe. It is native to low ground and also close to the ocean, but thrives on high ground. It is distributed over all the eastern half of the United States and is useful except in the semi-arid and sub-tropical parts of the country.

A worthy companion of the red maple for fall effects is the red oak (*Quercus rubra*) that forms tall oval-headed symmetrical trees whose dark green foliage gradually turns a deep red late in the season. Ordinarily the turning leaves hold on for two or three weeks and their rich dark red makes a magnificent show, especially if contrasted with yellow foliaged trees. If planted with evergreens other and brighter colored trees should be used with them. Their coloring is magnificent, but needs the yellows to give it its true value in the land-

is the sweet gum (*Liquidambar styraciflua*). The leaves turn a brilliant scarlet with more or less yellow as a sub-color, but giving the impression of a bright scarlet at a little distance. The tree is of medium height with an oval top. It is native from New Jersey southward and up the Mississippi Valley to Southern Indiana, extending well up the sides of the Appalachian Mountains, particularly the more southern portions. These trees are not among the first to be found on the sand islands along the coast like the two preceding species, but they are found in abundance just back of the marshes. They are attractive trees at all seasons with their star-shaped leaves in summer and their brown bark and curious round fruits during part of the winter. In the more northern part of their range they are somewhat difficult to transplant, so that it is probably best to move them only in very early spring. They may be grown quite a little north of the regions where they are growing wild.



#### NORWAY MAPLES

The foliage of Norway maples usually turns a bright yellow before dropping, although sometimes the leaves begin falling from the ends of the branches without coloring.

scape. These trees grow naturally on well drained soils all through the eastern half of the United States, including the sand islands along the coast, so that they are adapted to general planting except in sub-tropical and semi-arid regions. Under the latter conditions they could be used if some irrigation were possible. They can be used wherever there is sufficient moisture for grass to be grown as the lawn cover.

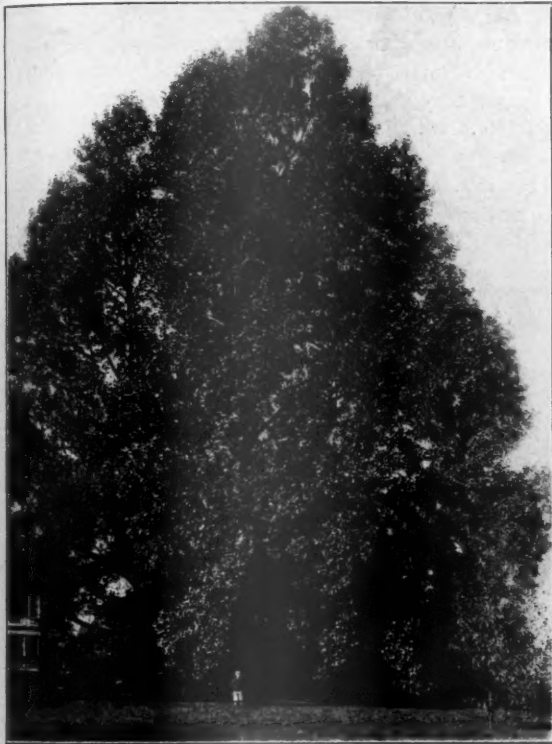
Another of the showy red trees in the fall landscape

It is a most desirable tree for home ground planting.

Another desirable tree for brilliant fall color is the sour gum or tupelo (*Nyssa sylvatica*). This makes a large almost round-headed tree with very dark green foliage in the summer and brilliant red leaves in the autumn. Even as early as August there may be a few scattered leaves that change color, giving promise of the brilliancy that is to follow. The tree is common in New England and the northern states and is well dis-

tributed throughout the eastern half of the United States. It is frequently found in swamps or in low ground, seems to succeed well on high dry ground, but probably prefers heavy land, while the sweet gum is found in greater abundance on lighter soils.

The scarlet oak (*Quercus coccinea*) is even brighter than the red oak in its fall colors and is equally as brilliant as the gums. Its foliage being more finely divided than that of the red oak gives it a lighter, more airy ap-



TULIP TREE

Another one of the yellow foliaged trees that adds much to the landscape from Pennsylvania and Kentucky southward. It is beautiful in combination with the tupelo or sour gum or the sweet gum.

pearance while the red of its leaves is most emphatic. It too is widely distributed throughout the eastern half of the country and is found native especially on the gravelly ridges and on lighter drier ground. It is not quite such a large tree as the red oak, but is well worthy of culture to help give variety in the autumn effects and can be used to advantage where a slightly smaller tree is desired or one that is a little less sombre in general effect.

The pin oak (*Quercus palustris*) also has brilliant foliage and is especially desirable where a trunkless tree is desired, that is, where it is desired to have the foliage extend from the ground to the top of the tree. The tendency of the limbs of the pin oak is to droop, and even if the tree is started with a trunk the drooping of the limbs as the tree grows older will have a tendency for them to approach the ground, although if this effect is desired a tree should be planted that has never had the lower limbs removed sufficiently to show a well-defined trunk.

The fall foliage is almost as brilliant as that of the scarlet oak, but instead of dropping from the tree on the approach of winter many of the dead leaves remain on the tree until spring. Different specimens vary greatly in the number of leaves they retain, some trees shedding their leaves almost as completely as the red oak and the scarlet oak, while others appear to retain practically all of them until late in the winter. The pin oak seems partial to wet heavy soil although it succeeds under a wide range of conditions.

In marked contrast to the brilliant reds of the trees already mentioned is the yellow of the sugar or hard maple (*Acer saccharum*). This is a native of gravelly and other well drained soils of the northern states and southward in and near the mountains. It reaches its greatest perfection in Western New England, New York, Ohio and Kentucky, but is adapted to a wide range of climate and soils, though it is not at its best in the sandy lands near the coast, especially in the south. It is a large oval-headed tree of handsome appearance at all seasons.

The Norway maple (*Acer platanoides*) vies with the sugar maple in the brilliance of its yellow foliage in most



FLOWERING DOGWOOD

A so-called flowering dogwood in its native habitat standing beside the trunk of a beautiful specimen of shag-bark hickory. The foliage of the dogwood turns a bright red and adds greatly to the autumn landscape.



seasons, although as a rule its leaves drop more quickly after coloring. It, like the pin oak, is a desirable tree to grow without a visible trunk with the branches resting on the ground. Its branches have a tendency to droop slightly which, with its tendency to form a low head and the denseness of the top, make it a most desirable tree to grow in this manner. It is a medium-sized round-headed tree that is rather undesirable when grown with a trunk because the dense top makes it almost impossible to maintain a sod under it.

The tulip tree (*Liriodendron tulipifera*) also called tulip poplar and yellow poplar, also has clear yellow fall foliage, but as the leaves drop more quickly after turning than some of the other trees it does not always make as much show in the landscape as some of the other trees, but it is worthy of planting for its yellow color in autumn. It is one of our largest trees, oval-headed and of rapid growth. It is native from Pennsylvania and southern Ohio and Indiana southward. It succeeds un-

If the top should die in transplanting, but the root should live and put out a new shoot, it is better to care for this shoot and develop a tree from it than to try transplanting another tree, because a root once established will soon grow a new top. With other shade trees, especially the oaks, the reverse is true.

The foliage of the poplars also turns yellow, but because the leaves of many of them drop so early and because of the many undesirable qualities of the trees for ornamental planting under ordinary conditions they should usually not be considered. They are useful along streams in open meadows on large estates, also in regions of small rainfall but for small places in humid climates they should be omitted from the list of desirable trees to plant.

The yellow fall foliage of the American elm (*Ulmus Americana*) is also not available for effective color combinations because the leaves turn part at a time and drop before most trees begin to color.



A CLUMP OF SHRUBBERY THAT COULD BE A RIOT OF COLOR IN THE FALL

The *Spiraea thunbergii* in the foreground would give a bright yellow and the *Philadelphus* in the background would also turn yellow for a very short time. By the use of sumacs, native roses, *Azalea vaseyi* and Missouri currant in such a clump reds could be added while spice bush would add a good yellow. The elm would be of little value in adding color as its leaves turn part at a time and fall immediately.

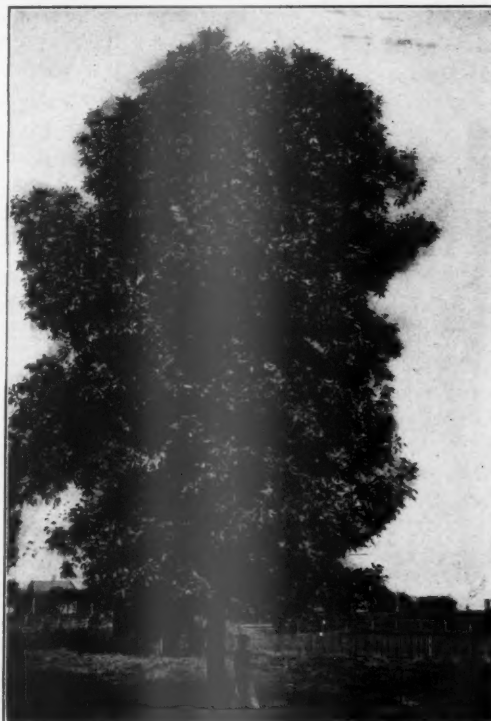
der cultivation considerably north of its native region. On account of its soft, fleshy roots it is somewhat difficult to transplant as it will not stand even as much exposure as most of our commoner shade trees. It should be transplanted only in early spring and the chances of success are increased if sizes under eight feet are used.

The hickories are another group of trees with bright yellow foliage that are decorative in the autumn landscape. One or another of the numerous species is native in all sections of the eastern half of the United States. Either the pecan (*Hickoria pecan*) or the shag bark hickory (*Hickoria ovata*) can be grown in all of

the country east of the dry farming belt and can thus combine some nut production with brilliant fall foliage. The hickories are medium-sized, oval-topped trees that are somewhat difficult to transplant on account of the long tap root. The trees are sufficiently attractive to be well worth some extra trouble in moving.

The ginkgo or maiden-hair tree (*Ginkgo adiantifolia*) is another tree with bright yellow autumn foliage that is most useful in ornamental plantings. Not only is the color a clear pure yellow but the peculiar shape of the leaf gives a texture to the tree that is quite different from that of most others. The leaves are shaped much like the pinnae, that is the smallest divisions of the frond of the maiden-hair fern, very much enlarged. The tree is attractive at all seasons. It is pyramidal when young but as it reaches maturity it forms a broad flat top. It grows to a large size. It seems to thrive in all parts of the United States except where there is such a deficiency of water that but few trees will succeed.

Although in the general landscape and in the arrangement of plants on places of an acre or more trees are of the utmost importance, yet when it comes to the average place which contains less than an acre and usually less than half an acre the smaller growing plants are of far greater relative importance for at most there cannot be room for more than one or two large trees on such a place and the major color effect must be produced by smaller plants. Among the smaller trees the flowering dogwood turns a bright red which with the scarlet berries makes a brilliant show on the approach of freezing weather. This tree sometimes attains a height of twenty feet or more with age, but is usually



SHAGBARK HICKORY

A nut-bearing tree that is valuable as an ornamental and adds a touch of yellow to the autumn landscape.

much smaller. It is an attractive tree with its foliage arranged in horizontal layers. Of course the showy white flowers in spring give it an added value for ornamental planting.

Of the small trees with yellow foliage the sassafras (*Sassafras officinalis*) is probably one of the best for the home grounds. Sassafras grows in thickets or sometimes singly where it occasionally becomes a large tree. Its value on the small place is chiefly as a small tree or as a mass or thicket. It is difficult to transplant, but when once established it can be trained as a tree or be encouraged to make a clump.

In the south the crape myrtle (*Laagerstromia indica*) becomes a small tree and turns a brilliant bronze almost or quite red in many cases. It is much grown for its summer and early fall flowers, but it also has value for the color of its ripening foliage on the approach of cold weather. It is widely distributed in gardens in the south and is easily



SMOOTH SUMAC

The dwarf or smooth sumac is one of the showiest of our low-growing plants in its fall coloring. It turns a bright red and holds for a long season. The staghorn and several other sumacs are equally valuable as ornamentals. Even the poison ivy colors brilliantly. The European or common mist tree is dull yellow.

grown where the weather is not too cold. As far north as Washington and St. Louis it leads a precarious existence, because of the frequent cold winters.

Among the shrubs the sumacs probably stand first for their brilliant red fall colors. Every one is familiar with the magnificent show they make on the roadside and in waste places. They grow wild over a large part of the country and always add to the beauty of the landscape,—in summer by their dark green foliage, in autumn by the brilliance of their red leaves and in winter by their red fruits that hang on until spring. They are easily transplanted and easily grown. As a rule they do not make an attractive single specimen, but when grown in masses are most effective.

The staghorn sumac (*Rhus coppalina*) grows to a height of ten feet while the dwarf sumac (*Rhus glabra*) grows only two or three feet high and has bright shiny

of attractiveness. It is an introduced plant that seems to thrive under almost all conditions. It grows close to ocean spray and where the dry winds of the plains strike it if provided with a moderate amount of moisture at the roots. It is easily transplanted and seems to grow well in all kinds of soil.

The common barberry (*Berberis vulgaris*) is also attractive, but because it harbors the wheat rust fungus, it should not be planted, especially as there are so many attractive plants that do not keep bad company.

Another plant with bronze foliage in the fall is the Oregon grape or mahonia (*Berberis aquifolia*). This is almost or quite evergreen in the north, that is it holds most of its leaves through the winter, although they turn a bronze color on the approach of cold weather.

The Missouri currant is another shrub that has red in its fall foliage, but it is mixed somewhat with yellow



GINKGO

A handsome oriental tree that adds a touch of pure yellow to the autumn landscape and makes a beautiful contrast to the reds of the red, scarlet and pin oaks.

leaves as though varnished. Other species are intermediate in height. The mist tree or smoke tree (*Rhus cotinus*) is quite distinct from the other species in appearance and its leaves turn yellow instead of red. The native American form (*Rhus cotinoides* of former times) has reddish foliage on the approach of winter.

Another showy shrub that has red foliage is the Japanese or Thunberg's barberry (*Berberis thunbergii*). There is some yellow also in the coloring of this plant that helps to give it a most brilliant and striking appearance when in front of other shrubs or in a clump by itself. It is rather late in turning and dropping its leaves so that it helps to prolong the season. Its full crops of scarlet berries also help to lengthen the season

that helps to give it an even more vivid hue than foliage that is solid red. It adds greatly to the final show of the fading year. On account of the white pine blister rust there is a restriction on the growing of currants in some parts of the country and an even more strict quarantine on their shipment in many cases. This is one of our native plants and one of the satisfactory ones for ornamental planting. Its showy yellow flowers in spring are also attractive as well as its foliage through the summer. It is easily transplanted and seems to grow well on most soils.

Another source of red for the fall garden are the Japanese maples of which there are two distinct types of varieties, those with red foliage and those with green



foliage. The latter are better. They give a brilliant touch of color in the spring when in bloom and again in the fall when the leaves turn.

The bridal wreath spirea (*Spiraea prunifolia*) turns a deep bronze before the leaves drop and makes a good plant to use among those having yellow or bright scarlet leaves. Thunberg's spirea (*Spiraea thunbergii*) has bright yellow foliage.

The foliage of the cornels or bush dogwoods like the silky dogwood (*Cornus sericea*), the red-stemmed dogwoods (*Cornus alba* and *C. stolonifera*), and the panicle dogwood (*C. paniculata*) show a mixture of red and yellow in their ripening foliage with a preponderance of the effect of the yellow. Unfortunately the leaves soon drop after changing color.

Some of the Viburnums as the arrowwood *Viburnum dentatum*, the black haw (*V. prunifolium*), and the high bush cranberry (*V. apelas* or better *V. Americanum*) all show yellow in their ripened leaves. Other Viburnums like the dockmackie or maple-leaf Viburnum (*Viburnum acerfolium*) have almost white leaves slightly tinged with pink.

Another native plant with bright yellow autumn foliage is the spice bush (*Lindera benzoin*). It is native to moist places usually in dense shade and under these conditions the foliage is rather sparse, but when it is cultivated, especially in the open, it responds with much more abundant foliage.

*Azalea Vaseyi* is one of the native azaleas that has a brilliant fall color in its foliage. These leaves turn a brilliant bronze and are very showy.

In addition to trees and shrubs vines may also add much to the fall color about the home. Among the best of these is the American ivy (*Ampelopsis quinquefolia*) variously called Virginia creeper, woodbine, and five-leaved ivy. This turns a brilliant crimson early in the autumn and the leaves hold on well toward winter. The usual form climbs by means of tendrils, so needs a fence or other support upon which to climb, but there is a form that has sucking disks instead of tendrils and this of course can climb on stone or brick walls that are not too smooth. It is native throughout a large part of the United States and seems to be able to grow almost anywhere.

Another vine with yellow and red foliage is closely related to the above and goes by the name of the Boston ivy. This climbs on stone and brick walls.

The false bitter-sweet (*Celastrus scandens*) has bright yellow fall foliage, but it soon drops. It climbs by twining.

Another vine with brilliant red foliage at the end of the growing season is the poison ivy (*Rhus toxicodendron*) also called three-leaved ivy and misnamed poison oak. It is native over a wide range of territory and should be eradicated near dwellings and wherever people are likely to frequent.

## PHILANTHROPY OR EFFICIENCY

(Cont'd from page 643)

problems are quite different from those any other country has faced, and what may apply to eastern Canada and Maine is the wrong system for Louisiana or the Northwest. On the lands of the same paper company in Ontario or Quebec black spruce will have to be differently treated than white spruce. Even the age of a tree can not be used to determine a selective cutting, maturity being reached at different times for the same variety of tree in different soils and topographic locations. It is not the purpose to give a discussion of scientific cutting methods here, but only to emphasize that the application of forestry cannot be put on a textbook rule of thumb

basis and is inseparably connected with the specific problems of efficient and economic logging. It can be handled only by that department which directly plans and controls all the woods operations.

Behind the new movement are such men as Ellwood Wilson, chief forester of the Laurentide Company of Quebec, and a leader in the application of practical forestry in America. The Laurentide Company is one of the largest and oldest newsprint concerns in America and it is significant that it should also become a leader in the idea of forest engineering efficiency versus weak-kneed philanthropy.



# CHINESE FORESTRY IN 1919-1920

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**P**ROGRESS denotes correctly the present condition of forestry in China, this country so long used as an illustration of the dire results that follow the depletion of forests, and undoubtedly in greater need of scientific forestry than any other large country in the world. The year ending with the spring planting, 1920, showed much progress over the previous year, which was described in the author's previous article under a similar title. The outstanding developments of the year were the organization of a provincial forestry service for Shantung Province; the enlarging of the forestry organizations in a number of provinces; the increased activity and services rendered by the Kiangsu Provincial Forest Station at Nanking, established in 1916; the extension of the forestry work being undertaken by three government railways, namely, Lung Hai, Peking Hankow, and Tientsin Pukow Railroad; increased educational interest in forestry particularly as part of the curricula of government agricultural schools; the increased production of forest nursery stock; and the greatly increased number of district magistrates, agricultural societies, small companies, and individuals undertaking forestry work. Although a numerical expression of this progress is open to criticism, it is fairly safe to estimate a conservative expenditure for various forestry enterprises, mainly nursery work and forest planting, at from \$200,000 to a quarter million

dollars, the production of 100 million trees in over one thousand nurseries, and the planting of twenty-five to thirty million trees on 100,000 acres of land. This may seem small when compared with some other countries, but large when one considers the background and the fact that China's interest in forestry is only a very few years old.

As indicated previously forestry is not developing in China as it has in western countries, with the Central government assuming a very large share of financial and administrative control, but by individuals, societies, or companies, districts and provinces. And this condition may be expected to continue even in face of a marked activity on the part of the Central government. Individuals, companies, and small political units in China will have from the outset a much more important place in reforestation projects than similar bodies have had in the West. This is an important fact, and argues well for the future of forestry in China.

The observance of Arbor Day is spreading widely and rapidly and is becoming of increasing significance.

It is a national holiday. It is observed by high officials as well as the school children. With the development of the School Nursery idea, that is, for the secondary schools to have their own school nurseries, as many western schools have their school gardens, and the children get to raising their own trees.



THE CHINESE PRIESTS HAVE PRESERVED MANY TREE SPECIES IN THE TEMPLE AREAS WHICH OTHERWISE WOULD HAVE BEEN DESTROYED



A GENERATION OF PROTECTION WOULD GIVE TO CHINA MILLIONS OF ACRES OF GOOD SECOND-GROWTH TIMBER



FUEL FOR THE CITY TO BE "TRADED IN" FOR OIL AND RICE AND OTHER NECESSITIES BY THE COUNTRYMAN

it will add much to the influence of Arbor Day not only on the children, but also on the community. Arbor Day is rapidly becoming indigenous and may be expected to



"CHINA HAS AT LAST STARTED TO REFOREST HER TEN THOUSAND BARREN HILLS." THIS SHOWS THE WORK IN PROGRESS UNDER THE DIRECTION OF D. Y. LIN, M. F., A GRADUATE OF THE YALE FOREST SCHOOL

be one of the important factors in hastening forestry development in China.

The outstanding forestry development continues to be that of the Kiangsu Provincial forestry station, started in 1916, located near the famous Ming Tombs in Nanking, at the head of which is Mr. Somg Sing-moo, a graduate of the Philippine School of Forestry, with twenty-one assistants, two of whom also received their forestry education in the Philippines. The budget for this work last year was \$34,000, voted by the Kiangsu Provincial Assembly and paid wholly by the province

through the Provincial Department of Finance. Thirty-four thousand mow of land have been replanted to date with two and a half million trees, including about one million trees planted on 11,000 mow of land last Spring. Three nurseries were maintained, with an area of 371 mow, carrying 1,275,000 transplants and about 3,000,000 seedlings divided among seventy-three different species. Trees and seeds for nurseries and over 50,000 trees for transplanting and for use in the observance of Arbor Day, were distributed to 186 district officials, agricul-



EACH FALL THE MOUNTAINS AND HILLS NEAR THE LARGE CITIES YIELD UP THEIR SEASON'S GROWTH OF GRASS TO THE BUSY FUEL GATHERERS

tural societies, agricultural and forestry stations and companies or individuals. There are three substations already located in important parts of the province with two more being planned for. In response to a procla-

mation by the Governor two years ago instructing district officials to develop forest nurseries in their respective districts for demonstration purposes as well as for supplying trees for planting to the farmers, encouraging headway has been made, and a large number of such nurseries have been established. Sixteen students are now being given practical training at the central station in Nanking, having been sent from various parts of the province. They are given class work in the morning and field work in the afternoon, and after three years of such training they will be sent back to carry out forestry work in their home districts.



THE RESULT OF PIONEER WORK. THIS IS A SMALL MOUNTAIN IN THE FAMINE AREA OF SHANTUNG PROVINCE WHICH HAS BEEN SUCCESSFULLY REFORESTED



The newest provincial development has been in Shantung Province, which has come into world prominence through the "Shantung Award" of the Paris Peace Conference. This work was organized by Mr. D. Y. Lin, a graduate of the Yale Forestry School, and at present of the Forestry Department of the College of Agriculture and Forestry of the University of Nanking, an American Missionary Institution at Nanking, China, who loaned him for the work at the special request of the Shantung Civil Governor. A Provincial Forest Service has been established, with a Chief Forester and eleven assistants. Work was prosecuted so vigorously that the first planting season saw the organization of three forestry stations, the establishment of three nurseries with plans for two more for the following season, over 550,000 trees planted on 2,000 mow of land and an additional 3,000 mow seeded. The budget calls for about \$22,000, payable through the Provincial Treasurer. Three government railways are engaged

in reforestation work looking forward to supplying their own ties and other timbers used in railroad construction and maintenance. Several other railways are contemplating similar developments. The budgets are voted by the various railway administrations interested. The forestry work of the Lung-Hai Railway, which is financed by Belgian interests, is under the direction of Mr. J. Hers, with a budget for the year of about \$17,000, which maintains a regular staff of about 50 men, including laborers, a large central nursery with three smaller ones controlled by it, in all about 120 mow in nurseries with a million and a half seedlings, transplants and cuttings. The reforestation has been mostly along both sides of the railway where 4,000,000 trees have been set out, including over 800,000

the past season. The Tientsin-Pukow Railway forestry work has a budget of about \$6,000 and is in charge of a graduate of Harvard Forestry School. About 850,000 trees have been planted to date, three-fourths of them this last year. There are two nurseries, one with about 640,000 seedlings and transplants. This work was begun in the late summer of 1918 and is just getting under way. The Peking Hankow Railway's forestry work is under the direction of Mr. Ngan Han, a graduate of the Forestry Department of Michigan State University. A large tract of mountainous land

in Southern Honan is being reforested, and while no detailed report can be given, the work is progressing nicely.

It would require a large volume to give the details of the various district forestry enterprises, which is not the purpose of this review. It should be noted, however, that out of the 1800 or more districts (counties) in China, probably twenty to twenty-five per cent have their own nurseries, or nurseries ad-

ministered for them and for the upkeep of which they are taxed. A few instances will indicate this local interest and progress. The Southern Chihli nursery has a budget of \$1600 which is raised by allocating \$40 to each of the 40 districts served. The Kao-Yi district of the same province has its own nursery, with a budget of \$1,080 which is raised from a local tax on cotton. The second nursery of the Chekiang Forest School has a budget of \$1500, a million and a half transplants and seedlings in its sixty mow nursery, and has direction

over eleven smaller nurseries. The second nursery of Shensi province, with three local nurseries under its direction has a budget of \$2,400, with a production of five million seedlings. This nursery has adopted the policy of giving free to anyone in their nursery area 50 trees and up to



TEMPLED WOODS. BUDDHIST MONASTERIES AND WOODED HILLS ALWAYS GO TOGETHER



LINING UP FOR THE 1920 ARBOR DAY PARADE ON THE CAMPUS OF WILLIAM NAST COLLEGE, IN CHINA

five pounds of tree seeds. For larger amounts a slight charge is made. The Kiangsu model forest plantation with its budget of \$1,590 from the provincial treasurer, in its two nurseries had about 2,000,000 transplants and seedlings and planted out about one-half million trees to the forest site. The Lin-Cheng district (Chihli) industrial deputy with his central nursery and four substations, his budget of \$1,350 raised from house and land taxes, and 3,000 mow reforested to date, is planning to have every family plant five trees annually for each male member. The second Chekiang Provincial nursery supplied free of cost over a million trees, to 16 districts in addition to schools, farmers and others, from its 190 mow nursery containing more than four million transplants and seedlings, on its budget of \$2934 raised from local taxes.

Records secured from twenty-one forestry enterprises, including large and small, from North and Central China showed an expenditure for the year under review of \$106,000, a production of 26,500,000 seedlings (80 per cent of total) and transplants in the nurseries represented and three and a half million trees planted to forest sites on 15,000 mow of land. From data at hand and from first-hand knowledge, conservative estimates of forestry expenditures and work last year would place the total amount of forest nursery stock raised at 100,000,000 trees, in considerably over 1,000 nurseries, with an expenditure of from \$200,000 to \$250,000. In addition there were probably between 25 to 30 million trees planted out to permanent sites on about 600,000 mow of land (100,000 acres). The largest nursery section is in North Kiangsu

around Yangchow, where an investigation showed an annual production and sale of between thirty and forty millions of trees, about one-half of which are pines.

An interesting and encouraging development is in the introduction of courses or departments of forestry into many of the secondary agricultural schools of which every province has from one to five. Anhwei Province is now teaching forestry in four of her five agricultural schools, Chekiang Province has a secondary Forestry school with a budget of about \$35,000, and a large enrollment. Graduates with forestry training will be in increasing demand, and the more imperative need would seem to be for more highly trained men than secondary schools can turn out. The present forestry education is an important factor in the situation both as it affects forestry personnel and development of an intelligent public opinion on forestry matters.

There is a phase of forestry development in China that America should be proud of, which is, that in practically all the large forestry enterprises men trained under American, or American trained, foresters are in the lead. Graduates of Yale, Harvard, Michigan, Syracuse and Cornell, of the Philippine School of Forestry, and of the University of Nanking, China, whose forestry teachers are Americans or American trained Chinese, are all holding positions of responsibility, and some are holding the highest in the country. A Forest Service in China with as high ideals as the Forest Service in the United States will be irresistible and to it will be entrusted one of China's greatest problems and needs.

#### THE UNWELCOME GUEST

(*Cont'd from page 641*)

from the acts of a few. Are we to see a time when the person who goes into the open country for a vacation is automatically branded a rowdy because he enters the general class of tourists when he takes to the road?

America's outdoor fraternity, the family which early visits the great woods, open prairies and mountain valleys faces a really serious problem because of the stigma cast upon all travelers by acts of a thoughtless few. Concerted action is needed by every class of person who lives any part of his life in the open to remove this indictment by furthering the simple code of courtesy of the mountains, fields and lakes. When ordinary good manners are as much demanded by each of the other in the field as in the club or home, then the traveler will no longer be the unwelcome guest whether he himself is guilty of any infraction or not. It must become as much of a sin against society to break the social custom of the outdoors as it is to over-step general social practice in the centers of culture. When all who make up the fraternity of outdoors insist that every member be considerate of the other and observe general good manners in the open then indeed will many now antagonistic to all tourists

become hosts and the tourist who is a petty vandal will carry not only the ill-will of the farmer he has harmed but the brand of condemnation of his own brotherhood.

#### THE MOUNTAIN LION, OCELOTS, LYNXES AND THEIR KIN

(*Cont'd from page 636*)

oh! so savage and bad-tempered that it becomes quite out of the question to handle them. For a little while they follow their mother about, who initiates them into matters of hunting, climbing and other traits so essential to the forming of the true lynx character. I am not informed as to what time the young grow the ear-tuffs and the face-ruff, which constitute such conspicuous features of the head of the full-grown animal.

In former years, hundreds of lynx skins, of this species, came into the fur markets, and their pelts were highly esteemed. For instance, Canada lynx furs, imported by the Hudson's Bay Company in 1858 and offered for sale in London in January and March, 1859, amounted to the following: 1858—28,102; in 1857—26,794; in 1856—18,907, or a total of nearly 74,000 skins, their selling price being two dollars and forty cents each.

## PROGRESS IN STATE FORESTRY LEGISLATION

**P**ROBABLY never in the history of this country has there been such marked interest in forest preservation by State legislators as at the present time, report officers of the Forest Service, United States Department of Agriculture. No less than 33 States have now provided for some sort of forestry activities and 25 of these share in the Federal co-operative forest protection fund, allotted to States maintaining an effective fire detection and suppression system. Two others have applied recently for such assistance. Public backing of the movement to preserve the remaining forests from destruction by fire, and to put idle forest lands to work growing trees, is becoming widespread, and the effects of the popular demand for action is shown clearly in the State laws passed this year.

Pennsylvania, under the direction of Gifford Pinchot, the new Commissioner of Forestry, leads all States in forest activities. The biennial appropriation passed by the legislature and approved by the Governor carried \$1,870,000, an increase of \$863,300 over the appropriation of 1919; \$1,000,000 of the total is for fire protection. The legislature also passed an act empowering the Federal Government to acquire lands on the watersheds of navigable streams within the State, by purchase or condemnation, and to control and regulate such reserves.

The Minnesota Legislature was more generous with the State Forestry Board than ever before. A total of \$275,500 for general forestry work was appropriated for the next two years, of which \$125,000 a year is for fire protection. The last named sum was augmented by an additional allotment of \$44,000 from the State Board of Relief. For the equipment of a flying field near the Twin Cities, \$45,000 was voted. This provision was to meet the offer of the Federal Government to furnish the service of 12 planes if the necessary hangars and flying field were provided. While the primary purpose of this agreement is to supply aerial mail communication, the planes will be able also to render effective service in "spotting" forest fires.

In California, where there has been much favorable sentiment toward forestry for many years, the legislature voted a substantial increase in appropriation for the State Board of Forestry, for the biennial period beginning July 1. For the prevention and suppression of fires \$75,000 was appropriated; for general administration, \$27,000; for a study of watershed areas, \$10,000, and to establish and maintain State forest nurseries, \$35,000. The legislature also voted \$300,000 for the purchase of redwood timberland for park purposes along the State Highway in Mendocino and Humboldt counties, the area to be administered by the State Board of Forestry.

Other important State forestry legislation passed this year was as follows:

Bills for the compulsory teaching of fire prevention

in public schools were passed by California, Rhode Island, and West Virginia. A similar measure was passed by the New York Legislature but vetoed by the Governor. New Jersey already has such a law.

Maine increased the annual tax on land within the forestry district from  $1\frac{1}{4}$  to  $2\frac{1}{4}$  mills on the dollar, the taxes thus collected to be used exclusively for protection from fire of the forests within the district; provided for the creation and management of State forests, acquired by purchase or gift, by the State Forester; adopted improved means for controlling the disposal of lumbering slash, and the encouragement of timberland owners to practice forestry on their lands through a concession in taxation.

Ohio passed a forest-fire law and appropriated \$5,000 a year for two years for the prevention and suppression of fires; also made an appropriation for the purchase of lands for State forests.

Tennessee passed a general forestry bill and appropriated \$10,000 for fire protection and \$7,500 for general forestry purposes.

North Carolina increased the State appropriation for forest protection from \$3,800 to \$9,000.

In Louisiana provision for State control of all natural resources, including forests, was provided for by Constitutional Convention held early this year.

In New Hampshire provisions were made for leaving seed trees on cut-over pine lands, for redistricting of the State for forest-fire purposes, and for compulsory forest fire-patrol on large timberland holdings.

Connecticut provided for reorganizing the State forestry administration and protection work, and for more liberal appropriations.

Several of the other State legislatures have also had forestry questions under consideration, which have made for progress, even where, as in Florida, no definite legislative enactment took place.

The Georgia Legislature, has passed a bill providing for the appointment of a board to investigate the forest conditions of the State and to report legislation necessary to solve the forest problem. At the recent meeting of the Southern Forestry Congress, in Atlanta, it was shown that the lumber cut of Georgia has decreased 33 1-3 per cent in the past 10 years, while the production of turpentine and rosin has fallen off 75 per cent. In the opinion of foresters, Georgia will soon take a place with the Carolinas as an insignificant producer of naval stores.

In only one State, West Virginia, was the forestry situation given anything like a setback. In that State, in reorganizing the forest, game and fish department, forestry was at first entirely eliminated and then, just before passage, an optional provision was included in the fish and game bill, by which the new commission can, if it wishes, expend not to exceed a fourth of its appropriations for forest protection.





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# DISSTON

## SAWS TOOLS FILES

## CHICAGO TRIBUNE URGES PRACTICAL

SO far reaching has become the educational campaign of the American Forestry Association for a national forest policy and for increased fire prevention for the forests that the newspapers, long a unit in cooperating with the Association, are now demanding action in strong terms. The editorial cooperation with the Association's campaign is one of the big constructive pieces of work the newspapers are doing at this time. As an example of this was the avalanche of editorial expression against a tariff on lumber following the statement of the effect of such a tariff at this time by Charles Lathrop Pack, the Association's president. An example of this expression is well set forth in the Chicago Tribune whose editorial was headed "Lumber and Reciprocity" and in which The Tribune said:

*Chicago Tribune:*—Camouflaging its action as reciprocity, the ways and means committee of the House has adopted the Canadian tariff schedules to apply on all our imports from that country. The schedule provides a 25 per cent ad valorem duty on all finished lumber.

It is the finished lumber that is needed to build our homes. This rate is three or four times higher than the Payne-Aldrich rates of 1909 on finished lumber.

It is defended as a "protective" tariff. Whom does it protect? None but the southern and western lumber men. It does not protect the thousands of residents in this country who are eagerly awaiting an opportunity to build homes at a price within their means. It exploits them. It sacrifices the standing timber of this country and tends to fix permanently or increase the present prohibitive costs of lumber for building purposes. The estimated shortage of 1,250,000 homes in the United States is continued, with the chances in favor of an increase rather than a decrease of that shortage.

The arrangement in effect gives Amer-

ican mill owners an advantage estimated at \$12 per 1,000 in competition with Canadian lumber. This advantage is found not alone in the tariff but partly in the difference in freight rates for dressed and rough lumber, the latter costing about \$7.50 per 1,000 feet more than the former. It means an increase of \$250 to \$300 in the cost of the average workingman's dwelling.

It not only thus penalizes the present generation but will take a heavy toll from the future. The *American Forestry Association* has warned the public and supported its

"Great Oaks From Tiny Acorns Grow"—Great Flames From Tiny Sparks



Wahl—In the Sacramento Bee.

warning with incontrovertible statistics, that the United States will face a timber famine within 50 years. Every foot of needed lumber kept out of this country by the proposed tariff will help to destroy a tree in the United States. For the conservation of our resources it is essential that there be no such bar to the use of Canadian lumber in America.

The very point of reciprocity proves beyond dispute that legitimate American lum-

ber interests have nothing to fear from Canada. The fact that Canada has a 25 per cent ad valorem duty and an anti-dumping provision for an additional assessment of 15 per cent indicates that they fear American competition. Obviously if our lumber mills are sufficiently productive to menace Canadian lumber interests they would not be deprived of a reasonable profit through the competition of Canadian lumber. The fact is that our cost of finished production is below the Canadian cost. Also we are now exporting considerable quantities of undressed timber to Japan. If this is possible at a profit we need not fear to sell timber to our own consumers on an unprotected rate.

This editorial has been widely reprinted but The Tribune does not stop there in its campaign. It calls for some "Practical Politics" in an editorial of that name which follows:

*Chicago Tribune:*—American Forestry, the magazine of the American Forestry Association, prints a map in the July number showing an area of 1,000,000 acres, covering more than half of four counties of north-eastern Pennsylvania, which is to be purchased by the government to protect the headwaters of the Allegheny river and to develop a renewal forest.

Is it any wonder that the United States senators and representatives from Pennsylvania are returned to congress by their constituencies term after term? They get practical results for their districts and their state. They are less concerned with panaceas or patent nostrums for the correction of national or international ills than with doing something which will improve the welfare of their constituents and provide for the future of their state.

Reforestation is a commendable enterprise. It not only conserves the water supply of a large section of Pennsylvania but

### GASOLINE ALLEY

### DOC NEEDS A DEMONSTRATION



King—In the Chicago Tribune.

## POLITICS AS AN AID TO FORESTRY

promises to provide much needed lumber at reasonable prices in the future. Pennsylvania makes it a practical reality through federal aid. The interest of its congressmen in the patent nostrums of legislation is merely in their value for trading purposes. What wise man would not trade a vote for the Norris bill for one favoring purchase of 1,000,000 acres of land for reforestation in his home district?

Why cannot the agrarian bloc in congress

a national forest policy. This is from an editorial on "Peoria and Her Trees":

*Peoria Transcript*:—To the assistance of the interested citizens comes the *American Forestry Association*, realizing that its own work, which is much larger and farther reaching, can be better served when it has made the mass of the citizenship more intelligent on the whole question of trees. Business men of this country are paying millions of dollars a year in freight bills

because the center of the lumber industry is getting farther and farther away from the points of greatest consumption, the nation's factory centers. We must have a national forest policy that will put the idle acres in the middle west and in the east to work growing trees. In considering a national policy we must consider a disease. That disease is forest devastation, the *American Forestry Association* points out. Its effect is a slow sapping of national strength—through the steady exhaus-

when one of the country's greatest needs is to bring them further down. And that is not the only objection. Charles Lathrop Pack, of Lakewood, President of the *American Forestry Association*, makes the point that such a tax would be in direct conflict with a sound national forest policy. A tariff on lumber, he tells us, would put a premium upon every standing tree in this country. The force of that is beyond question. It will be nothing short of a form of economic suicide for the United States to make it more difficult for us to get a supply of a necessary product from foreign countries when our own supply is threatened with destruction.

*Albany Knickerbocker Press*:—Forest devastation has evidently reached the point where it is producing despairing cries and some ineffective legislation; it has become an equally national and state issue.

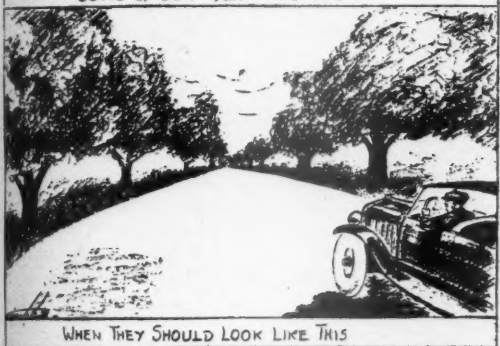
*Sault Ste. Marie News*:—"Idle land in this country must be put to work growing timber and that at once, for a crisis nears and when that crisis comes it will be the public as usual that pays the bill."

Mr. Pack speaks truly. The public is vitally interested. The criminal waste of

### THIS IS THE WAY



SOME OF OUR HIGHWAYS LOOK



WHEN THEY SHOULD LOOK LIKE THIS

Gibbs—In the Baltimore Evening Sun.

do as much for the middle west? Wisconsin has large tracts of land in crying need of similar reforestation, and worthless for any other purpose. Illinois and the entire Mississippi valley is in need of improved waterways. At least sixteen states of the middle west are asking for congressional approval of the St. Lawrence seaway. Many states and thousands of manufacturers want the elimination of the "Pittsburgh plus" system for fixing prices on steel products. There is plenty of practical work for the agrarians in congress. If the Pennsylvanians can get practical results in congress why cannot the middle westerners?

These are but examples of the way the newspapers of the country are keeping the value of forest products and the necessity of increasing the supply of those products before their readers. The *Peoria Transcript* points to the need of educating the public to the value of trees that the public may get an idea of the bigger proposition—

tion of the national timber supply. The effect will become fatal when, through the shortage and high cost of timber, the United States is reduced to the level of western Europe, when wood is priced as an imported luxury, when not only manufactures and trade are handicapped by lack of it but the comfort of our own people and the efficiency of our agriculture are straitened by its scarcity.

*Newark Ledger*:—A tariff on lumber would send building costs up at a time

### THE SPENDTHRIFT



Brewerton—In the Atlanta Journal.



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our forests must be stopped and the quicker the voice of the people is heard in this connection the better for all concerned.

*Johnson City (Tenn.) Staff:*—Is it not high time we took steps along the lines of the Snell Forestry Bill to cut our freight bills for forest products and at the same time to remove one of the serious causes of freight car congestion by adopting a program which will put our 81,000,000 acres of wholly idle and 235,000,000 acres of partially idle lands to work?

*San Francisco Chronicle:*—The period of waste of our forest resources must now definitely come to an end. So far as possible, cut trees must be completely utilized. The wooded regions must be protected from fire. Reproduction must be promoted on all cut-over land. Such a policy requires the effective co-operation of state, national and local authorities and private owners.

*Olympia (Wash.) Recorder:*—In considering a national forest policy we must consider a disease. That disease is forest devastation, the *American Forestry Association* points out. Its effect is a slow sapping of national strength—through the steady exhaustion of the national timber supply. The effect will become fatal when,

through the shortage and high cost of timber, the United States is reduced to the level of western Europe, when wood is priced as an imported luxury, when not only manufactures and trade are handicapped by lack of it but the comfort of our own people and the efficiency of our agriculture are straitened by its scarcity. Abundance of wood for home and farm use, for varied manufacturers and for export trade has been a primary factor in our commercial supremacy, so important right now, and it is a factor which we are not going to surrender. The problem must not be met by using less and less wood, down to the level of civilized existence, as France has been compelled to meet it. It must be met not by decreased use but by increased production the Association well argues. It must be met in the American spirit of development, of enterprise, of an organized and far-sighted handling of our resources that will supply the future requirements of a continued liberal use of timber in national development and industries.

*Trenton (N. J.) Times Advertiser:*—Do you know that the annual consumption of newsprint would make a two-foot strip of newspaper reaching 40,000,000 miles or half way to the sun? The war left us in a state of mind whereby no set of figures could stump us or give us pause until this

statement from the American Forestry Association, and we must admit that it takes "some trees" to keep industry going in this country.

The tree is a lifetime proposition. A hurricane wiped out millions of them in the West the other day. A forest fire cut a swath in Canada recently and consumed trees that would have kept many factories going. The Forestry Association is working for a national forest policy which includes better fire protection methods. It also wants us to get better acquainted with trees. Under the pressure of necessity we must make the best of the knowledge we have of methods, imperfect though that knowledge may be. The handling and perpetuation of our forests in the last analysis must, however, rest on a solid foundation of careful and thorough forest investigations.

*St. Paul Pioneer Press:*—It cannot be from lack of information on the subject or due appreciation of its importance, because the ear of the people has fairly been stunned with its reiteration; but the fact remains that Minnesota never has been swept into real action in the matter of reforestation. It will go on living on the reputation of its great pine forests when the last stick of merchantable timber has disappeared and without a clear working and workable policy of replacement.

## NATIONAL HONOR ROLL, MEMORIAL TREES

Trees have been planted for the following and registered with the American Forestry Association, which desires to register each Memorial Tree planted in the United States. A certificate of registration will be sent to each person, corporation, club or community reporting the planting of a Memorial Tree to the Association.

### ARKADELPHIA, ARK.

By Arkadelphia Chapter, D. A. R.: The Boys Who Fought in the World War.

### HELENA, ARK.

By School Improvement Association: Marvin M. Gramman, Marcus Collins Hammett.

### PUEBLO, COLO.

By Mrs. Samuel Spencer: Lt. Glenn K. Spencer.

### ATLANTA, GA.

By Alliance Francaise: Marshal Joffre. By Kindergarten Alumnae Association: Madge Bingham. By Council of Jewish Women: Martha Wolstein. By Druid Hills Kindergarten Pupils: Mother Goose. By Witches' Club: Ella Whesler Wilcox. By Overseas Girls' Club: One of the War Poets. By Georgia Chapter of the National Society of Daughters of the Founders and Patriots, O. Henry. By Children of American Revolution, Eugene Field. By Margaret A. Wilson Chapter, Children of the Confederacy: Uncle Remus. By Mrs. J. C. Oliver, Dr. Frank Crane. By Mrs. J. M. High, Rudyard Kipling. By Virginia Federation of Women's Clubs: Oscar Wilde, Edgar Allan Poe. By History Club: Thomas Nelson Page.

### EVANSTON, ILL.

By William Dawes Chapter, Children of the American Revolution: William Eastman, Jr.

### PARK RIDGE, ILL.

By Park Ridge Improvement Association: Roosevelt Gold Star Boys.

### STERLING, ILL.

By Wallace School, William Loran: Unknown Dead. By Sterling Woman's Club: Harry Erisman.

### WINNETKA, ILL.

By Winnetka Post, American Legion: Phillip Comfort Starr, Vincenzo Di Giorgio, Roswell Hayes Fuller, George Raymond Kelly, James Edward Hayes, Dinsmore Ely, Wesley Major Juleff, Pasquale Salerno, Charles Douglas Weart, Fletcher Ladd McCordic.

### CONNERSVILLE, IND.

By Fayette County Auxiliary, American War Mothers and Kiwanis Club: Reginald Fisher, Glen Sample, Harry Selm, Vernon Doll, Clyde Colshur, Charles Jones, Paul G. Hamilton, Benjamin Jones, Alfred Morrison, William R. Hunter, Roscoe Wrigley, Louis Daniels, Paul Wolf, Raymond C. Keller, Charles R. Prather, Arthur Case, Teddy Brewer, Francis Michaels, John Plough, Ira Gwinup, Clyde Allison, Louis Myers, Carl Stam, Ernest Schoenburn, Garret Thompson, John Reynolds, Hansford Hooper, Murray Dawson, Howard Gansert, Jasper J. Murphy, Harry Duerson, Merle Worthington, General Edward Chrisman.

### MARTINSVILLE, IND.

By Woman's Club: Morgan County Boys Who Served in the Great War. By North School: Morgan County Boys Who Enlisted from the School.

### KEOKUK, IOWA.

By Civic League: Albert L. Agnew, Oscar Althar, Thomas E. Barnett, George Bauer, Merle X. Boyer, Lawrence Buffington, Charles Otto Buayan, Walter Couchenour, William LeRoy Crane, Samuel DeWitt, Tony Dunn, John Clines, Edward Grober, Joseph Harper, John Albert Hartung, Lester Harter, Charles Hilsabeck, George Hogboom, Vincent Hunt, Robert Jacques, Leo P. LeBroun, Martin W. Little, Charles A. Lucas, James McKenzie, Richard S. Manning, Herman Miles, Ira Morehouse, Guy Clark Morris, James Neill, Thomas J. Palmer, B. J. Pohlpetter, John G. Robertson, Clyde W. Scarlett, Leo Schevers,

Arnolds Schmeig, John Perdew Sheldon, George Stillman, Mark R. Tighe, Carl W. Thiem, William Weider, George Welsch, Henry Young, Chester Lee Baker, Oakle A. Jackson, Karnie Knight, John M. McCampbell, Glen A. Morgan, Albert Glen Osburn, Walter Wells, Carroll Joy.

### WEBSTER CITY, IOWA.

By Ladies' Cemetery Association for Workers, Ladies' Cemetery Auxiliary, Hamilton Co. Post 191: The Men Who Died in Service (2).

### BEREA, KY.

By Woman's Club, Everett Riley Kerby.

### CHARLEVOIX, MICH.

By Mr. and Mrs. E. D. Shapton, Corp. Leslie Thomas Shapton.

### CHARLOTTE, MICH.

By City of Charlotte: Harold N. Teeter, Donald Hubert, Verne Betts, Van E. Boyd, Ercel Ray Canfield, Kenneth Campbell, Rufus Perry Childs, Ora Vern Church, Roy Cole, Charles William Ernberger, Edward Foote, Walter E. Franklin, Irvin M. Greenawalt, John King Jacquette, Orland Johnson, Frank J. McGrath, Frank Frederick Miller, Ray John Morrow, Harry Norris, Alpha Rice, Clarence C. Roe, Eugene V. Shaffer, Ernest Swan.

### IONIA, MICH.

By Stevens Thomson Mason Chapter, D. A. R.: Men and Women of Ionia County. By May Tuttle Nead, Jay A. Tuttle. By Nora Morse Taggart, Myron Morse. By Addie Heald Marshall, James Heald.

### WALKERVILLE, MICH.

By Mrs. Laura Kipkey: George Warren Zimmerman.

### HANNIBAL, MO.

By Women's Auxiliary, American Legion, Emmett J. Shields Post, No. 55: The Men of Hannibal Who Died in the Great War.

### GOTHENBURG, NEB.

By Gothenburg Women's Club: Manley Hoppes, William Sievers, William Miller, Corp. Harm Martens, George Maline, Ivor Stewart, Carl Kuhlman, Horace Golden, Corp. Ralph McFate, William Golden.

### SARGENT, NEB.

By Woman's Club, Community Boys.

### BROOKFIELD, N. Y.

By Brookfield High School: Meade Palmer, Charles Vunk.

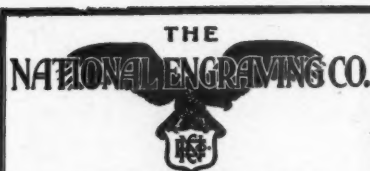
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By Nature Study Department, Woman's Club: Jack Kleinlein, Clarence J. Bolton, Frank Blaine Sloan.

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nings, Howard Courts.

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John C. Roche, Sgt. F. C. Grootzinger, Leonard  
B. Wilson, Robert D. Fleming, Albert V. Bollin-  
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Hazel Glen Service Star Legion, Group 4,  
World War Heroes.

### PITTSBURGH, PA.

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Mother, Sisters and Brother: Edwin C. Stehla.  
By Father and Mother: Sgt. Joseph W. Kiesel.  
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By Service Star Legion: Heroes of the World  
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### WILKINSBURG, PA.

By Service Star Legion: Wilkinsburg Heroes.

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World War Heroes, Wall Heroes, McKeesport  
Heroes.

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nett, Robert Hamilton Warren, Herbert S. De-  
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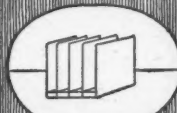
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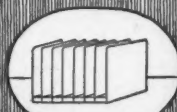
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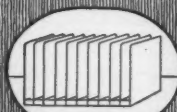
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# WISCONSIN FORESTRY ASSOCIATION.

The Wisconsin Forestry Association, organized last winter as a result of a call issued by a score of state-wide industrial, commercial, farming and civic associations and organizations of women, is working actively and steadily for the adoption in Wisconsin of a comprehensive state forestry policy, says the Milwaukee Journal. It seeks to bring about the reforestation of non-farming land located anywhere in Wisconsin. It advocates growing forest products within the state, utilizing hundreds of thousands of unproductive acres and increasing and making permanent the great wood-using industries, now rapidly dwindling. It urges adequate protection of forest lands against fire, a change in the taxing system that will conserve standing timber, and just treatment, in the way of taxation, of settlers and communities within forest areas.

The Association also urges the reforestation without delay of the shores of lakes and streams; the creation of village, city and county forests and the planting of native trees along all state and county trunk roads.

The Association, now working under a temporary organization, will soon file articles of incorporation and effect a permanent organization. Already it has a membership which includes lovers of nature, lumbermen, paper makers, manufacturers, professional men and prominent women.

Already the foundation has been laid for a broad, constructive state forestry policy. The legislature took the initial step so to amend the constitution as to empower the state to acquire and reforest nonfarming lands. Bills to enable the state to acquire tax title deeds to land suitable for forestry, to permit towns, villages and cities to establish memorial forests adjacent to their municipal limits, to insure better fire protection and to multiply the growth of planting stock in the state forestry nursery for reforesting municipal and private lands are among the forestry measures that have been enacted.

The Association is planning a systematic campaign preparatory to the legislative session seventeen months hence. Henry C. Campbell, assistant editor of The Journal, is chairman; F. W. Jones of the Brown Land and Logging Company, Rhinelander, is vice chairman; George D. Bartlett, Milwaukee, secretary of the Wisconsin Bankers' Association, is treasurer and C. L. Harrington, forestry member of the state conservation commission, Madison, is secretary. Any one of them will be glad to reply to inquiries regarding the organization, its purposes and the conditions of membership.

State forestry embodies the greatest material opportunity that Wisconsin possesses outside of industrial and agricultural development. It is work, moreover, that will



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#### PULPWOOD FROM WOODLOTS.

With recent investigations indicating that the pulp and paper industry of New York is finding only half its supply of raw material within the state, the foresters of the college of agriculture at Ithaca point out that the time is rapidly approaching when the farm woodlot as a source of pulpwood may well be considered.

A careful estimate of the available supplies on privately owned land within the Adirondack region reveals only a sufficient quantity to maintain the present cut for a period of about fifteen years. This condition will make necessary certain changes within the industry, all of which are of more or less vital importance to a large number of farm woodland owners in the state.

There is within the Catskill and southwestern counties a large stand of material suitable for pulpwood which is now largely unavailable because of freight rates.

#### TURPENTINING DOES NOT HURT LUMBER VALUE

The operation of turpentinizing pine trees does not lower the strength of the wood, according to information obtained by the Forest Products Laboratory of the Forest Service, United States Department of Agriculture. The crude turpentine, or oleoresin, is not drained from a reservoir in the tree, but is produced by the living cells in the sap wood at or near the spot where the cut is made on the trunk. No turpentine is produced by the heartwood because all of its cells are dead. The heartwood may be saturated in places with pitch, but this does not readily flow out as does the resin freshly formed in the sapwood. The major part of the tree is not affected in any way, and the loss due to death of trees or to a reduction or degrading of lumber is very small when the proper method of turpentinizing is followed; this loss is more than offset by the additional revenue obtained through turpentinizing. The greater part of the wood that is chipped away would not have become finished lumber, but would have gone into slabs and edgings at the sawmill. With proper treatment the turpentinized faces remain healthy, and the wood underneath does not become saturated with resin to any great extent.

#### AMERICAN WOOD PRESERVERS' ASSOCIATION.

The Service Bureau of the American Wood Preservers' Association has been established to promote the use of wood properly treated to resist decay, marine borers, and insect attack, thereby aiding in the conservation of the forest resources of the nation by making one stick of timber do the work of several.

Headquarters are maintained which act as a repository for reliable information on the practice of and the results obtained from the art of wood preservation.

The value of wood for construction purposes is fairly well understood but for permanent structures treatment with a standard preservative, such as cresote or zinc chloride, is absolutely necessary.

The policy of the SERVICE BUREAU is to give the public reliable information on the treatment of timber according to the standards of the American Wood Preservers' Association and the use of treated wood.

Publicity will be given to facts relative to treated wood from the standpoint of economy and conservation through the public press, trade and farm papers, and technical journals.

### Be it Fact or Fiction

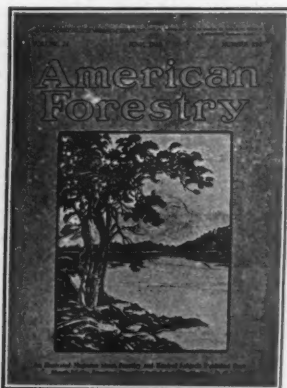
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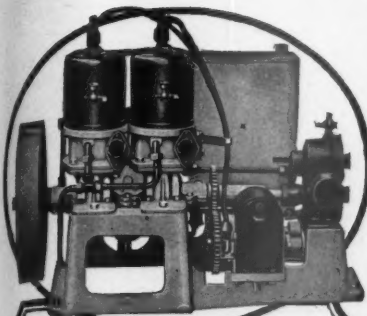
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# BOOKS ON FORESTRY

AMERICAN FORESTRY will publish each month, for the benefit of those who wish books on forestry, a list of titles, authors and prices of such books. These may be ordered through the American Forestry Association, Washington, D. C. Prices are by mail or express prepaid.

FOREST VALUATION—Filibert Roth.....	\$1.50
FOREST REGULATION—Filibert Roth.....	2.00
PRACTICAL TREE REPAIR—By Elbert Peets.....	2.25
LUMBER MANUFACTURING ACCOUNTS—By Arthur F. Jones.....	2.10
FOREST VALUATION—By H. H. Chapman.....	3.10
CHEMISTRY OF PULP AND PAPER MAKING—By Edwin Sutermeister.....	6.10
CHINESE FOREST TREES AND TIMBER SUPPLY—By Norman Shaw.....	2.50
TREES, SHRUBS, VINES AND HERBACEOUS PERENNIALS—By John Kirkgaard.....	2.50
TREES AND SHRUBS—By Charles Sprague Sargent—Vols. I and II, 4 Parts to a Volume—Per Part.....	5.00
THE TRAINING OF A FORESTER—Gifford Pinchot.....	1.35
LUMBER AND ITS USES—R. S. Kellogg.....	2.15
FORESTS, WOODS AND TREES IN RELATION TO HYGIENE—By Augustine Henry.....	5.25
DEVELOPMENT OF FOREST LAW IN AMERICA—By J. P. Kinney.....	2.60
STUDIES IN FRENCH FORESTRY—By Theodore S. Woolsey.....	6.10
FOREST PHYSIOGRAPHY—By Isaiah Bowman.....	5.10
KEY TO THE TREES—Collins and Preston.....	1.50
THE FARM WOODLOT—E. G. Cheyney and J. P. Wentling.....	1.75
IDENTIFICATION OF THE ECONOMIC WOODS OF THE UNITED STATES—Samuel J. Record.....	2.60
PLANE SURVEYING—John C. Tracy.....	3.60
FOREST MENSURATION—Henry Solon Graves.....	4.00
FOREST PRODUCTS, THEIR MANUFACTURE AND USE—By Nelson Courtland Brown.....	4.15
THE ECONOMICS OF FORESTRY—B. E. Fernow.....	1.61
FIRST BOOK OF FORESTRY—Filibert Roth.....	1.10
PRACTICAL FORESTRY—S. Fuller.....	1.50
PRINCIPLES OF AMERICAN FORESTRY—Samuel B. Green.....	2.00
TREES IN WINTER—A. S. Blakelee and C. D. Jarvis.....	2.50
AMERICAN WOODS—Romeyn B. Hough, 14 Volumes, per Volume.....	7.50
Half Morocco Binding.....	10.00
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GETTING ACQUAINTED WITH THE TREES—J. Horace McFarland.....	1.75
HANDBOOK OF TIMBER PRESERVATION—Samuel M. Rowe.....	5.00
TREES OF NEW ENGLAND—L. L. Dame and Henry Brooks.....	1.50
OUR TREES, HOW TO KNOW THEM—By Clarence M. Weed.....	3.50
TREES, SHRUBS AND VINES OF THE NORTHEASTERN UNITED STATES—H. E. Parkhurst.....	1.50
TREES—H. Marshall Ward.....	1.50
OUR NATIONAL PARKS—John Muir.....	1.91
PRACTICAL FORESTRY—John Gifford.....	2.50
LOGGING—Ralph C. Bryant.....	4.65
THE IMPORTANT TIMBER TREES OF THE UNITED STATES—S. B. Elliott.....	2.00
MANUAL OF FORESTRY—VOL. I—Ralph C. Hawley and Austin F. Hayes.....	3.60
THE PRINCIPLES OF HANDLING WOODLANDS—Henry Solon Graves.....	2.60
SHADE TREES IN TOWNS AND CITIES—William Solotaroff.....	3.60
THE TREE GUIDE—By Julia Ellen Rogers.....	1.00
MANUAL FOR NORTHERN WOODSMEN—Austin Cary.....	2.12
FARM FORESTRY—Alfred Akerman.....	.37
THE THEORY AND PRACTICE OF WORKING PLANS (in forest organization)—A. B. Recknagel.....	2.60
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THE LAND WE LIVE IN—By Overton Price.....	1.70
WOOD AND FOREST—By William Noyes.....	3.00
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THE STORY OF THE FOREST—By J. Gordon Dorrance.....	.45
FOREST MANAGEMENT—By A. B. Recknagel and John Bentley, Jr.....	2.60
THE FOREST RANGER AND OTHER VERSE—By John Guthrie.....	1.00
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THE KILN DRYING OF LUMBER—By Harry D. Tiemann.....	4.65
MODERN PULP AND PAPER MAKING—By G. S. Witham, Sr.....	6.15
THE PRACTICE OF SILVICULTURE—By Ralph C. Hawley.....	4.10

\* This, of course, is not a complete list, but we shall be glad to add to it any books on forestry or related subjects upon request.—EDITOR.



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## A LICENSE WITH FOREST FIRE CLAUSE.

In the mountains of Virginia the huckleberry, the dewberry, the raspberry, and the blackberry, are the "meat" of all frugal souls who realize that Old King Frost spoiled the fruit crop for this year. "Recently," says the Forest Service of the United States Department of Agriculture, "one of these souls who has respect for the service came into the office of the supervisor, saying that he would like to have a permit to pick berries on Government land.

"He rather surprised us," the report states, "but after some figuring it was decided to give him a 'hunting and fishing permit' with 'gather berries' inserted. This hunting and fishing permit carries a clause that states, 'You are privileged to hunt and fish on Government land within the Natural Bridge National Forest, provided that you will report all forest fires and will assist in suppressing such fires as may occur within a radius of 5 miles from the point where you are hunting.' The permit was issued and the permittee departed on his way happy, but he started something.

"It was but an hour or so until another came in. 'Please, kin I git a permit to get huckleberrys offen the mountain?' and that was the beginning of a steady stream. Everybody wants a permit, and everybody's gettin' it. In less than a week we issued 100 permits and most of these included the whole family. The roving small boy wants one for his very own and he is given it, but he is asked to read it 'out loud' before he takes it away and his big impression that he also takes away is that there must be no 'fire on the mountain.' This is not the midst of a fire season, but it can safely be said that the idea of protecting the forests from fire was never so generally and generously scattered among the people in and around the Natural Bridge."

## NEW SECTION FOR LABORATORY.

A new section for industrial investigations has recently been added to the Forest Products Laboratory and the Forest Service of the United States Department of Agriculture believes it will meet a real need. The work will embrace the following lines: A survey of the primary and secondary wood-using industries to determine the possibility of more complete utilization of by-products, low-grade material, and wood waste; dimension stock study, including the standardization of small dimension stock requirements and determination of the most economical methods of converting the standing tree into the form of material required in secondary wood-using industries; standardization of nomenclature, sizes, grades, and specifications for lumber and cross-ties; wood waste exchange to effect the utilization of raw material now disposed of as

waste by supplying a medium through which producers can locate markets for woods, mill and factory by-products and waste, and wood-consuming plants can locate material of this character such as will meet their requirements; general work, including the broad field of encouraging the wider use in the wood using industries of the results of technical research available at the laboratory.

The proposed personnel of the new section, partly recruited from other laboratory sections, will consist of 10 technical foresters, 1 engineer, and 4 nontechnical employees.

#### UNIVERSITY OF CALIFORNIA SCHOOL OF FORESTRY.

Fourteen juniors and seniors of the University of California School of Forestry have returned from Calforest Camp on the Plumas National Forest, where they have been engaged in the varied work of the summer course. Professor Metcalf, Professor Bruce and Professor Fritz were in charge.

Many improvements in the camp accommodations were completed during the year, the most notable being the swimming pool, which the boys built themselves.

Evening meetings before a roaring camp fire were held at frequent intervals. District Forester Redington, Supervisor D. N. Rogers, Lumberman Ray Orr and Professor Walter Mulford were among the guests entertained at these meetings.

Professor Fritz has been conducting a field study of utilization and waste in the Redwood region this summer.

Professor Metcalf has recently returned from a trip to Whitaker's Forest in Tulare County for remeasurement of sample plots of Sequoia gigantea second growth.

Professor Bruce leaves shortly for an inspection of the Redwood region with Forest Examiner S. B. Show.

Professor D. T. Mason left the faculty in May to open a consulting office in Portland.

#### THE RANGER CONGRATULATED.

In congratulating the editors of *The Ranger*, Forsythe Sherfese, Forestry Adviser to the Chinese Government, says: "The publication reflects great credit upon the spirit and ability of all concerned in its preparation, and it is my earnest hope and belief that it will be of increasing value to the entire personnel of the Bureau—and to the cause of forest Conservation in the Philippines".

With the third number of *The Ranger*, published monthly by the Filipino Rangers' Association before him, the editor of *American Forestry* heartily concurs with Mr. Sherfese's expressions.

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## ANIMAL INGENUITY OF TODAY

By C. A. EALAND, M.A. The author's love of nature is shown on every page. He describes the skill, clever devices, and stratagems of birds, reptiles, insects, and other forms of animal life—how they order their lives, and protect themselves. The world of nature is a real wonderland, and Mr. Ealand the best sort of a guide through it. Profusely illustrated.....\$2.25

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Forestry teaching in spring and fall at Manitou Forest (a 7,000-acre forest belonging to the School) and the winter term at Colorado Springs.

Write for announcement giving full information.

## ATTENTION, FORESTERS

AMERICAN FORESTRY will print, free of charge in this column, advertisements of foresters wanting positions, or of persons having employment to offer foresters. This privilege is also extended to foresters, lumbermen and woodsmen, discharged or about to be discharged from military service, who want positions, or of persons having employment to offer such foresters, lumbermen or woodsmen.

### POSITIONS WANTED

**EX-SERVICE MAN:** age 30; married; two and one-half years in forestry college; experienced in city forestry, nursery work, tree surgery, dynamiting and in handling men; wishes position in city forestry or park department any where in northeastern United States. Now employed. Address Box 3025, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (10-12-21)

**WINTER POSITION** wanted with lumber company as time keeper or similar work. Graduate of high school and ranger course, 25 years old, good references from previous employers. Address Box 3030, care AMERICAN FORESTRY MAGAZINE, Washington, D. C. (10-12-21)

**POSITION WANTED BY FORESTER.** A healthy United States citizen, 36 years old, actively engaged in logging in equatorial America, where he has done considerable practical and scientific pioneer work, now wants to return to work under more civilized and progressive conditions. Has 12 years' bush and mill experience. He works best where difficulties and problems are greatest. He is a practical enthusiast for constructive and reconstructive forestry, and desires to make connection with a body recognizing said qualities. Address Box 2090, care of American Forestry Magazine, Washington, D. C. (8-8-21).

**EX-SERVICE MAN** wishes employment with some Forest Construction Concern or Irrigation Company which can use a young man who is a Technical High School Graduate, and who is a Mechanical Draftsman with some slight knowledge of plane surveying. Willing to work and can do same. Address Box 2096, AMERICAN FORESTRY MAGAZINE, Washington, D. C. (8-8-21)

**CAN YOU USE ABILITY?**—Young man, technically trained with master's degree in forestry desires position of responsibility with some lumber or forest products company. Fifteen months experience. Address Box 212, Lockhart, Alabama. (8-10-21).

**POSITION WANTED** as City Forester or Park Superintendent. Have had practical experience as Manager of Private Estates and have been 14 years in present position as Park Superintendent. Desirous of making a change at this time. Address Box 3005, care of AMERICAN FORESTRY, Washington, D. C. (9-11-21)

**TREE SURGEON**—Formerly employed by the Davey Tree Expert Company, desires to make connection with some reliable company doing work such as tree surgery, or private work on large estate. Will consider reasonable salary to start if good future offers. Address Box 3010, care AMERICAN FORESTRY, Washington, D. C. (9-11-21)

**MARRIED MAN** would like position as CITY FORESTER or in charge of large private estate. Any forestry position will be considered as a change in locality is desired. Have had technical training and recently graduated from one of the foremost forestry schools of the country. Ex-service man, having spent three years in the service. Address Box 3020, care AMERICAN FORESTRY Magazine, Washington, D. C. (9-11-21)

**CITY LANDSCAPE ARCHITECT AND FORESTER**, thoroughly conversant with Southern conditions, desires to change. Correspondence invited. Address D, care AMERICAN FORESTRY Magazine, Washington, D. C. (9-11-21)

### POSITION OPEN.

**POSITION** of Secretary-Treasurer of Forest Protective Association of Timberland Owners open. Duties will be to conduct correspondence, keep accounts, canvass for new members, work out publicity campaigns, etc. Applicants should state salary desired. Address Box 350, in care AMERICAN FORESTRY, Washington, D. C.

## PLEASANT THINGS TAKEN FROM LETTERS TO THE EDITOR

"I especially prize the magazine and am very much interested in the work of the Association."

JOHN S. KERR.

"We are much pleased with your magazine and it is improving with every issue."

W. A. MORROW.

"I must say that you have made the magazine very attractive, not only from the viewpoint of forestry, which I naturally would be interested in, being in the lumber business, but also in other scientific research information, which is instructive and interesting. I congratulate you upon this forward stride and feel sure that it is appreciated by your subscribers."

ERNEST STEVES.

"The AMERICAN FORESTRY is highly instructive and it should be in every American home."

E. J. GUTKNECHT.

"I have for some time been a subscriber to that most enchanting and edifying magazine, AMERICAN FORESTRY, and believe it has a great opportunity in shaping, as it endeavors to do, public opinion in the right direction in regard to a forestry policy."

MRS. ALGERNON B. ROBERTS.

## FORESTERS IN PAPER INDUSTRY

**T**HAT forestry has advanced in the last fifteen years from a mission to a recognized profession is in no way better evidenced than by the manner in which the paper industry has provided positions in its organizations for the technical forester," says O. M. Porter, Assistant Secretary of the American Paper and Pulp Association. "There are now so many foresters engaged professionally by paper companies," he says, "that there is a special department, the Woodlands Section, in the American Paper and Pulp Association, composed of foresters and woods superintendents of paper companies and the executive secretary of the Association itself, Dr. Hugh P. Baker, is a Yale Forest School alumnus. These foresters are carrying into this great industry, both in the United States and Canada, their profession by practicing it, and I am proud to say that they are recognized as delivering the goods so effectively that their methods, once regarded by practical woodsmen as fanciful theories, are now recognized as making a profit for their employers."



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